SCHOOL LIFE

OFFICIAL JOURNAL OF THE ★ ★ ★ ★ ★ ★ ★ ★ ★

OFFICE OF EDUCATION

In This Issue

New System of Educational Information
WAYNE O. REED

Three Letters on Guidance
LOUISE OMWAKE ECKERSON

September 1960

CONTENTS

3 Brief reports
Surplus property sales
Women's Bureau
Science clubs
Family life conference
Army radio series
WCOTP conference

5 Education Information
Wayne O. Reed

6 USA at Geneva

8 Information Conference

10 Testing and Counseling
Louise Omwake Eckerson

14 School Bonding Capacity
Elmer C. Deering

15 Japanese pen pals

16 Aids for Teaching Math
Milton Beckmann

19 Education in Chinese Areas
Robert D. Barendsen

22 Ad Minutes

24 Education in rural areas
Wilson Gee

31 Public School Statistics
Emery M. Foster

For all mankind

THE UNITED NATIONS . . . can be viewed from many angles and evaluated in many different ways. It may be criticized as a place where we lose our time in pursuing a debate sterilized by the weaknesses so often flowing from a narrowly tactical approach to the problems of the community of nations. But the United Nations may, for better reasons, be hailed as a forum where delegates, inspired by their responsibility and guided by the spirit of the Charter, can find means to further, in international political life, the kind of human communication with other nations which is the basis of fruitful debate and, alone, can lead to the solution of conflicts.

The value of public diplomacy in the United Nations will depend to a decisive extent on how far the responsible spokesmen find it possible to rise above a narrow tactical approach to the politics of international life, and to speak as men for aspirations and hopes which are those of *all* mankind. To follow such a course renders more effective the means offered by the United Nations for resolving the international conflicts which endanger peace. It reflects the traditional ideals of spiritual freedom and individual responsibility which have made the democracies strong.

By Dag Hammarskjold, Secretary-General, United Nations, to the Governors' Conference in May 1958. Published here in anticipation of UN Day, October 25, 1960.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE • ARTHUR S. FLEMMING, *Secretary*
OFFICE OF EDUCATION . . . LAWRENCE G. DERTHICK, *Commissioner*
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SCHOOL LIFE
September 1960
Vol. 43 . . . No. 1

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School Life reports Office planning and action and publishes articles by members of Office staff; presents statistical information of national interest; reports legislation and Federal activities and programs affecting education. Published monthly, September through May.

Printing approved, Bureau of the Budget, July 28, 1958. Contents not copyrighted. Subscription: Domestic, $1.75 a year; foreign, $2.25; 1-, 2-, and 3-year subscriptions available. Single copies, 20 cents. Send check or money order (no stamps) to the Superintendent of Documents. U.S. Government Printing Office, Washington 25, D.C.

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Brief. . . . . EDUCATION AND GOVERNMENT Reports . . . . . .

In the past year and a half the amount of surplus Federal Government property put into classroom and laboratory use trebled. During this time science teachers in 1,606 schools and colleges in 35 States acquired, for their schools, equipment originally costing $60 million for only one-tenth of 1 percent to 2 percent of the cost.

The Department of Health, Education, and Welfare, which administers the Government's program of donating surplus property to eligible health and education agencies, believes that the sharp rise in acquisitions is partly the result of giving teachers in many areas the opportunity to select equipment on the spot at Federal installations. On specified days, science teachers and State surplus property agencies can shop through a large array of electronic, communication, and photographic equipment for items convertible to classroom use.

The rise is also due to the fact that more teachers have become aware of the program. The Department's Surplus Property Utilization Division, with the cooperation of the Office of Education, has prepared a guide listing types of property usually available. This guide was distributed to the 18,000 science teachers who attended the 381 institutes sponsored by the National Science Foundation this past summer.

Of the $400 million worth of surplus Federal property available to health, education, and civil defense agencies in fiscal year 1960, more than 75 percent went to educational institutions.

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Since the Women's Bureau was established in the Department of Labor 40 years ago, there have been many changes in the education of women and in their jobs. The number of women finishing high school and college has increased, and more and more women are being accepted in fields formerly reserved for men—fields like mathematics, engineering, and high-level office work.

To celebrate its 40th anniversary the Women's Bureau held a 2-day conference on June 2 and 3 to study the future of the American woman. The principal conclusion was that the fullest acceptance of women to meet the Nation's manpower needs can be accomplished through improved guidance and placement, increased educational opportunities in new fields, and more extensive training programs. (The Post Office Department celebrated the Bureau's anniversary by placing on sale, on June 2, a 4-cent stamp honoring the American woman.)

Since the conference the Women's Bureau has issued four publications about the working woman: Maternity Benefit Provisions for Employed Women (*Bulletin 272*), Minimum Wages and the Woman Worker (*Pamphlet Eight*), Part-Time Employment for Women (*Bulletin 273*), and Women Workers Can Meet The Challenge (*a leaflet*). *The first three sell for 25, 15, and 30 cents each from the Superintendent of Documents, Government Printing Office, Washington 25, D.C. Single free copies of the leaflet are available from the Department of Labor, Washington 25, D.C.*

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The same Congress that passed the National Defense Education Act of 1958 (P.L. 85–864) and thereby gave support to the improvement of science education in secondary schools, also passed the science club act (P.L. 85–875) to "strengthen future scientific accomplishment in our Nation by assisting in the development of a body of boys and girls with a special interest in science." By its action, the Congress demonstrated that it recognized that extraclass activities as well as formal classroom and laboratory instruction are of great value in science education.

The law authorizes the appropriation of $50,000 for each fiscal year, beginning with 1959, to "enable the Commissioner of Education to encourage, foster, and assist in the establishment [of clubs] in localities throughout the Nation" for students interested in science.

The Commissioner of Education has delegated working responsibility for the law within the Office to the In-

struction, Organization, and Services Branch, directed by J. Dan Hull. Dr. Hull reports that during the past year he and his staff, including A. Neal Shedd, specialist in science clubs, appointed in October 1959, have been busy carrying out this mandate of Congress. They have consulted with chief State school officers, State supervisors of science, directors of summer camps, and leaders of professional associations on plans for carrying out the law and coordinating activities; initiated a survey of current activities; and planned the publication of a newsletter.

Later this year *School Life* will carry an article by Mr. Shedd reporting the progress thus far under the law.

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The World Assembly of Delegates of the World Confederation of Organizations of the Teaching Profession met in Amsterdam on July 31–August 7 on "Child Health and the School." Representatives of teacher associations in 60 countries attended. Delegates urged all nations to take positive steps to ensure to their children the "fundamental right to live and to live a healthy life." They called on teachers, teacher organizations, and schools to assume their share of responsibility for providing adequate health education and services for all schoolchildren.

The background papers used by the delegates were prepared from national reports of organization members, by Elsa Schneider, specialist for health, physical education, recreation, and safety in the Office of Education, working as a special consultant to WCOTP. Dr. Schneider will give School Life *readers a report on the WCOTP 1960 meeting in a later issue.*

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Family life in America will grow more important in the decades ahead for it will be in the family that the individual will have a feeling he will experience less and less in his work and social contacts—the feeling that he is valued and irreplaceable. This was the conclusion of a panel of seven social scientists who met in Washington on June 21–22 at the request of the Commissioner of Social Security, William L. Mitchell, to advise him on priorities for sustaining and enriching family life. The panel members were Raymond Bowers of the University of Georgia, Orville Brim of the Russell Sage Foundation, Reuben Hill of the University of Minnesota, Otto Pollak of the University of Pennsylvania, and Ira Reid of Haverford College—all sociologists; Nathan Maccoby of Stanford University, a psychologist; and John Spiegel of Harvard University, a psychiatrist.

The group sees great changes coming in political and economic institutions in the next decades, changes that will greatly affect family life. There will be occupational shifts, more women will work outside the home, and housing patterns will change. International tensions will continue, as will unemployment; population will expand; and there will be more leisure time. Government will become more important to the family for the services it gives and for its influence over monetary, employment, and other national policies. Government's widening influence will be felt especially in research, in the training of persons for the professions, and in setting standards for service programs.

The panel recommended that government family service programs include education for family life and counseling and guidance and called for an evaluation of techniques of current government programs for families in the Social Security Administration and in other Federal agencies.

Commissioner Mitchell said the recommendations would be given careful study. He particularly welcomed the panel's recommendations on future economic and social developments; foresight of this kind, he said, makes it possible to plan constructive programs *before* problems arise which will spare the family the shock of meeting problems unprepared.

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On Saturday, September 17, at 12:35 p.m., the Army Recruiting Service and the Mutual Broadcasting Company will begin a series of 13 weekly radio programs about young people. Entitled "Topic of Conversation," the programs will be unrehearsed panel discussions by authorities in many fields. M. Sgt. Stuart Queen, host of the Army's Big Picture Series, will be moderator.

Topic for the first discussion will be "The American college today and tomorrow." Guests will be Mitchell Dreese, George Washington University; Gilbert Wrenn, University of Minnesota; Richard Fryklund, *Washington Evening Star;* and Col. Robert W. Sylvester, Educational Liaison Officer, Department of the Army.

The next three programs, which will carry our readers into the next issue of *School Life*, are as follows (other programs will be announced in October and November):

September 24, "American youth fitness today," by Shane McCarthy, chairman of the President's Committee on the Fitness of American Youth; Lt. Bob Anderson, West Point All-American; and Lou Means, American Association for Health, Physical Education, and Recreation.

October 1, "American youth programs in action," by E. W. Aiton, director of the National 4-H Program; Elmaar Bakken, Division of Relationships, Boy Scouts of America; Mrs. Francis Hesselbein, national representative, Girl Scouts of America; and Frank Mueller, Chamber of Commerce of the United States.

October 8, "Are today's young people being prepared in high school for life's work?" by Commissioner of Education Lawrence G. Derthick; Ellsworth Tompkins, executive secretary of the National Association of Secondary School Principals; John Miles, Education Department, Chamber of Commerce of the United States; and Col. John W. Rodgers, Department of the Army.

by WAYNE O. REED

New Horizons in Educational Information

A NEW CONVICTION is growing among this country's leaders in education. It is a conviction that the next 10 years will see a revolution in the processes of gathering and using information, and that this revolution, bringing us knowledge we now hardly dare to dream of, will lead us onward to still other changes in our educational enterprise.

This past summer about 100 men and women met in Washington to talk this idea over. They represented 47 State departments of education, 22 local school districts, and the Office of Education. For the greater part of a week, from June 6 through 9, they concentrated on the need for a modern system of gathering and disseminating information, the kind of system that's wanted, and how to get it. Their point of view is epitomized in this article, adapted from Dr. Reed's talk to the conference. What the conferees concluded, what they recommended—all this is summarized on pages 8 and 9.

THERE IS an old saying that knowledge is power. But to *know* is not easy. At least it is not easy in such a vast and complex matter as education.

Education today is so involved, so changing, and so diverse that even the most professional educator knows it only in part. The interested lay citizen, no matter how assiduously he studies education, is often deeply perplexed. Only the naive person or the unscrupulous merchandiser of panaceas dares to claim full understanding.

But complexity and change are not all that present both layman and educator with puzzles and problems. If complexity and change were all, we would need only to put our keenest and wisest minds to work at once, and the decisions, clearcut and unerring, would soon emerge. More thwarting by far than complexity, more unsettling than change—though partly the concomitant of both—is our shortage of information about education.

This shortage may well be the most serious, the most pervasive, and the most unrecognized educational shortage of all; it may well be the subtle cause of all those other shortages which we clearly recognize as afflicting our schools year after year. This shortage is so subtle that many a man who is troubled by it does not even realize what he lacks.

In our system, lack of information is crippling. Our free public schools are so designed that their success depends on whether the public understands and supports what they are trying to do. If the public does not understand, then pupils do not do their best, teachers are less happy and effective, the administrator is hampered, and the school's resources are cramped.

We who believe in the public schools are advocates of involving citizens in education; and we can be proud, I think, of the extent to which we have encouraged them to participate in making policy and evaluating our services. But it is not enough merely to involve them. Unless we also give them all the facts, their involvement may be a hazard or a hollow mockery. Many groups of citizens have found that before they can do anything constructive they must first conduct a survey. It is of course wholesome that they are aware of their need for information, but their lack of information is a downright handicap to them and a reproach to our profession.

If the lay citizen needs information about education, the professional educator needs it even more. The distinguishing characteristic of a profession has always been a sound body of specialized knowledge by which its members can guide their judgment and practice. As things are now, educators must solve too many problems with scant information and much guesswork, though they can no more perform competently without knowledge than doctors or engineers or architects can.

A full and free flow of educational information is neces-

Dr. Reed, since 1957 the Deputy U.S. Commissioner of Education, has been an educator at State and local levels also—as teacher and principal, district and county superintendent, State superintendent of public instruction, and college president.

sary also if we are to preserve freedom in education and in our society. In these days, as men increasingly see education as a factor in social and economic development and an instrument of public policy, the hazard grows that some who have or seek power will be tempted to try to control education. Some who would not go so far as to control education itself may scruple less to regulate the flow of information about it.

Lest anyone think only of Government officials as the actual or potential restricters of educational information, let me remind you of the thousands of laissez-faire propagators of questionnaires. They gather the vast bulk of educational data, state them on their own terms, use them for their own purposes, and distribute them if and as they choose; and the net effect of their variety and diversity is to restrict the flow of information. A thousand private libraries, each containing a thousand books, may be very satisfying to their owners. But a single public library of a million volumes will provide much more information for many more people.

One of the greatest advantages of facts is that they unite us. Just a few weeks ago I saw a striking and encouraging example of how possession of the facts can bring about consensus. A group of specialists in the machine processing of data had come together in Washington from all parts of the United States, representing many school systems and State departments of education. They had met to work out standard recommendations for coding certain basic items of educational data, but they were no farther than the first item when they found themselves divided among at least 7 different methods, each with its own advantages and disadvantages. They set out at once to examine these methods objectively, and within an hour they had the facts and were ready to take a vote. Without hesitation they adopted one method unanimously!

As our record in educational legislation shows, we in the United States sorely need consensus like this on many educational problems. Even within the profession we suffer from separatism, such as that exhibited in the gulf between organizations of elementary and secondary teachers and organizations of college and university teachers. Too often we have gloried in our diversity, lacking both the wisdom and the power to work together toward a common goal. The achievement of fruitful consensus requires more than information, I admit; but certainly information is its chief ingredient.

So much for the basic reasons for a fast and efficient system of information services. I come now to some questions of policy and procedure.

I am convinced that it is technically feasible to develop

United States

DELEGATION at GENEVA

CAUGHT by newsmen's cameras both from the back and from the front, the four United States delegates to the 23d International Conference on Public Education in Geneva this past summer sit in the conference room of the Palais Wilson, listening over earphones to a discussion of another nation's report. From left to right in the lower picture: Leo P. Black, Romaine P. Mackie, Fredrika M. Tandler, and chairman-of-the-delegation Samuel M. Brownell.

Next month's *School Life* will carry the delegates' report.

a modern system of information services that can keep pace with the needs of the future. Already some State departments and local school systems are making remarkable and encouraging advances in machine data processing. But all of us can move more readily toward a new system if we willingly abandon obsolete concepts. I suggest that we take as our slogan the reply of a Vermont farmer to a tourist who wanted to get to Montpelier but was lost on a backroad: "If I wanted to go to Montpelier," he said, "I wouldn't start from *here*."

How can we persuade our profession that the preparation of educational information is much more than the collecting of data? That the widespread propagation of questionnaires imposes intolerable burdens without yielding adequate returns? That the old methods were never satisfactory and become less so with each passing year because they are based on untenable assumptions? That efforts to merely improve the old methods can end only in frustration?

If we are to avoid repeating our own old mistakes or having unsuitable practices pressed upon us by well-meaning friends in other fields, we should exercise our own minds, abandoning happily what no longer serves and selecting what best suits our needs and circumstances. The relatively simple methods which do so well in collecting vital statistics, for example, or in the decennial census, may not be the ones for us.

It seems to me obvious that a modern system of information has to be comprehensive and intercommunicating, serving all needs. It has to be so, partly because communication, despite our vaunted efficiency at it, is costly. Even if we could persuade ourselves that we should have separate and duplicating systems, the taxpayers would not pay for them. That is reason enough, but an even better reason is that a comprehensive intercommunicating system is the only one that can receive data from all sources, store them, process them efficiently, and deliver the information promptly to the user, in the form he wants it in.

But how do we arouse throughout the country the favorable support we need for developing such a system? If you think there is no great problem here, ask yourselves what persuasion you would use to arouse enthusiasm among classroom teachers, among superintendents or board members, or even among educational statisticians and information specialists? How would you persuade lay citizens that the preparation of educational information is not simply a matter of writing to local superintendents and asking them to send information promptly? Maybe not all these people will need persuading, but some of them certainly will.

Fortunately, one circumstance is much in our favor. People with expert judgment in fiscal matters are already sharply aware of the need for information. It is no accident that the men who deal with money learned long ago the need for accurate basic records, efficient accounting, and complete analysis of data to answer the questions of those who determine policy or administer programs. I must say, in all frankness, that in recent years I have observed more than one instance in which budget authorities pressed more vigorously for improved educational information services than many of us did.

It is helpful, of course, to have budget authorities on our side. But it is not sufficient. Although we shall need substantial funds to build a modern system of information, money alone will not suffice. As a matter of fact, money will not even be forthcoming unless we in education have a clear vision of what we mean by a modern system of information services and of what we must do to get it.

One important part of this vision is a clear view of the place that educational agencies at each of the three levels should have in this system. How should local, State, and Federal resources be utilized, for example? And how should the system itself be designed to support the responsibilities at each level?

What should be the responsibility of local school systems? They are the primary sources of most of our educational data and are undoubtedly the chief communicators with parents and citizens. For purely local communication, of course, no revolutionary developments may be necessary, particularly in small systems, where face-to-face meetings may suffice. But even in our smallest communities educators and laymen alike have an interest in education that reaches far beyond their own neighborhoods.

What should be the responsibilities of our more complex educational agencies in the large cities and in the State? In our cities the educational problems and fiscal complexities are kaleidoscopic. Even in our smallest rural States, the State education departments are hard-pressed to provide the information the legislatures require; and in our most populous States the variety and complexity of the needs and the demand for information have increased amazingly. State educational agencies particularly, because of their strategic position between the local and the national scene, have responsibilities for information services that far transcend their own needs.

What should be the part of the Office of Education? The preparation of information has always been one of its prime functions, and at the national level the concern for education has always been great. Today, however, international affairs have thrust education more than ever into the national limelight, and many matters we once conceived of as local only have taken on new importance for our Nation both at home and abroad.

As I raise these questions of who should be responsible for what, I am of course aware that there are many details which can be worked out only through experience. But I am convinced that from the very beginning we should

follow a policy of partnership and shared responsibility; for at each level the educational agencies have their own responsibilities to discharge and their own distinctive contributions to make, and by working together they will increase the benefits from the new system, both for themselves and for others.

How many years should it take for us to develop this system? It is inconceivable that many more years will pass without substantial progress: education is too important for that. If we plan carefully and well, the basic job can probably be done in 5 years if we have a vigorous program of large-scale projects in every State. But this will require a sustained and balanced effort, which will be made only if the plans have been soundly conceived by people who understand our educational system and know the responsibilities of all types of education agencies and the contributions each can make.

A new system of educational information, if it is to cope with today's needs and be adaptable to tomorrow's, must be the product of many minds. But in its early stages it must be the product of minds exceptionally competent, responsible, and dedicated. We are in the early stages now—in a time for measuring our needs, defining our goals, inventing procedures, stimulating enthusiasm, and building cooperative relations. As we go along we will find our problems many and serious. Our experience and wisdom will often seem insufficient. But the need is crucial and the benefits will be very great. I am confident that the job can be done. Let us get on with it to the very best of our courage and ability.

Consensus at the Conference on Educational Information

Dr. Reed gave the foregoing talk at a conference the Office of Education had called for two inextricably related reasons: To evaluate systems now in existence for gathering, organizing, and presenting educational information; and to consider the possibility of building a new system—a system modern and efficient enough to give us promptly all the facts we need.

The conferees, all from State and local school systems, attacked their assignment in both general and group sessions, and reached the consensus we summarize here as a series of highlights—a consensus which in the months and years to come will unquestionably express itself in many changes.

THERE'S no question about it: We need a new way of collecting and digesting educational information. Our school system has outpaced our informational system, has been doing it for years, and now the gap is so wide that only heroic efforts will close it. Today we have 35,000 school districts, scores of thousands of schools, hundreds of thousands of teachers, and millions upon millions of pupils. Because we desperately need knowledge about all of them, just as tomorrow we will need knowledge about even larger numbers of schools, teachers, and pupils, we somehow must create an information system flexible enough to cope with both today and tomorrow.

BUT how and where do we begin?

We must begin everywhere at once, for this is a cooperative job. Both educational agencies and educational organizations have to get into it—at local, State, and national levels. The local school, which is the fountain of all basic data for the public school system at elementary and secondary levels, must supply not only the needs of its own community but the needs of the State and the Nation; in turn the State and the Nation, organizers and analyzers for the larger scene, must each bear its share of the responsibility for speed, accuracy, and dependability. Obviously, each must simultaneously improve its own part of the process.

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ONE of the first problems to attack is the widespread indifference to the need for information about education. A modern informational program is, in a way, a kind of intangible; and many people do not yet understand how imperative it is that we have one. In local schools, particularly, there is a lack of awareness of the objectives; there is even skepticism and misunderstanding. For this reason all professional organizations, citizen organizations, the press, legislative bodies—all, in short, who know the importance of facts—should join with local, State, and Federal educational agencies to promote an intelligent enthusiasm for a better way of getting information.

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A CONCERTED effort should be made to determine exactly what information is needed at the local, the State, and the Federal level. The Office of Education should acceler-

ate its cooperative programs for determining what items of educational information should be available at each of these levels. The priority of items to be collected should be based upon the use that will be made of them and the money and effort that will be required to collect them.

* * *

THE LOCAL public school is the basis of the information pyramid, the source of virtually all data on public elementary and secondary education. But too little attention has been given to improving the local school's records. Present programs for developing handbooks and guides for local staff should be accelerated and expanded. Right now all levels of education, particularly the local systems, are short of people well trained in statistics and accounting. The accounting profession and colleges and universities should be encouraged to give immediate and specific attention to training programs that will help provide the educational accountants that will be needed in increasing numbers in the years ahead. The States should be called upon to step up their programs of inservice training.

* * *

WE NEED soon to have a national conference of leaders in educational accounting and key people from large and small school districts and from professional educational organizations to attack the problems in providing leadership and training programs in educational accounting.

* * *

THE ACCOUNTING systems in local schools should yield ready answers for State and Federal reports, answers using uniform terms and definitions so that comparison will be meaningful among all districts and all States. During the past decade the Office of Education, working in cooperation with the chief State school officers and national organizations, has developed handbooks of standard definitions and procedures. The big job now is for the States to promote the widespread adoption and use of these standards. The Office of Education should extend and accelerate such programs as the cooperative development of still other handbooks, and should provide guides, materials, and consultive services. Cooperation at and among all levels must continue, to insure acceptance and use of the materials developed.

* * *

WE NOW have at hand the methods and technologies required for a new modern information system. School administrators are learning how machine processing methods can help them gather and use information. These machines make possible for the first time a comprehensive, intercommunicating system, with remarkable flexibility for analytic research and for the prompt preparation of information to serve very specific needs. The big question is: How can we make expeditious widescale conversion to machine methods? State and local training programs and pilot projects will be necessary. The Office of Education should publicize the benefits and characteristics of machine processing through conferences, workshops, and consultant services.

* * *

TRAINED personnel, handbooks, uniform definitions, and machine processing methods would all be essential features of an overall *simplified* system in which *uniform* methods would be stressed. Many States are now well on the way to simplified systems. New Mexico has revised all of its forms that go from the State to the local schools. Florida has done the same thing and in one year has reduced the number of these forms from 431 to 39. Many States are finding that machines can give them more accurate data and can eliminate some of the tedious work that previously had to be done by teachers or local administrators. Florida, for example, has found that many errors in arithmetic are eliminated by getting the raw data from the local schools and doing the work by machine at the State level.

* * *

WHERE will the money come from? Both State and local systems have to compete with business and industry for trained accounting and statistical staff, a competition they are doomed to lose with their present salary schedules. We will be moving rapidly into machine processing, and machines are expensive. With machines, we will be able to do many things that we could not do before, but they will not save money. Title X (Section 1009) of the NDEA should be expanded to include funds for helping State and local school systems convert to automatic data processing systems, and funds for training programs for the accountants and technicians that will be required in increasing numbers.

Immediate attention should be given to devising a method for equitably dividing the cost of an efficient information system among local schools, the States, and the Federal Government.

* * *

The Office of Education should take the leadership in developing and promoting an overall program, including a timetable, for a comprehensive nationwide system of educational information. It should be an intercommunicating system which would make available to local school districts, to State departments of education, and to the Office of Education, all the items of educational information they need—when they need them!

by LOUISE OMWAKE ECKERSON

Testing and counseling: Three letters

This triad of articles—one each for the parent, the teacher, and the counselor—takes on perspective against the background of the September issue of *School Life* one year ago. That issue, which was devoted almost entirely to a broad discussion of testing from many sides, stressed testing as one of the important tools of the counseling process. Here we move closer to the subject, to take a closer look at a few facets—at some misinterpretations that should be corrected and at some practices that should be changed.

GUIDANCE: *A letter to counselors*

COUNSELOR, think back to your graduation day in high school. Did you know what you would be doing 25 years later? Did you have any plans beyond your intention to go to college? Who could have predicted that you would become a counselor? Probably no one, for, as a profession, guidance then was little more than a dream.

Along with counseling, thousands of new jobs have been created in the past 25 years, created by atomic energy, air travel, television, and frozen foods, and the world has changed, and people are interested in many new things—abstract art, rock and roll, fall-out, and Khrushchev.

Twenty-five years from now we may have to learn how to eat soup without the pull of gravity to hold it in a bowl; we may have to learn the Martian language; we may be living on ocean farms, or we may have to adapt ourselves to cave-like existence in bomb shelters. The things people will do for a living, the attitudes they will have, and the ways in which they will spend their leisure hours may change as drastically as they have changed within our times.

Tomorrow, as you talk with Jim Dean about his plans for college, how can you help him look into his future? What undreamed-of uses will there be for mechanical and artistic talents? In what direction will science go?

Jim may be quite different in 25 years, too. He may no longer be quiet and shy; he may have developed self-confidence and leadership. His frail body may have become healthy and robust. Instead of being an accountant, as he once thought, he may have become a U.S. senator or president of the United States. How, then, can he plan at the age of 17? Can you assist him?

Perhaps you can. If you ferret out all personal data about him—his interests, his general ability, his special aptitudes, and his hobbies—logically relate them for him, and permit him to plan the moves of his own king and queen across his own chessboard, he may learn to guide himself.

Your counseling interview will give Jim a cross section of his assets and liabilities as they are *now*. However, some probing into his past may reveal the direction in which some of his tendencies have been moving—growing or diminishing or otherwise changing. Jim, seeing their direction, may learn to watch his own development and make his decisions alone if he is given some guidelines.

Jim's interest test may show relatively strong preferences for computation and clerical study, which make him look like the budding accountant he has thought himself. This is the look of the present. At the age of 17, his pattern may be fairly well set, but not necessarily so.

Because Jim is afraid to assert his personality among his classmates and friends, his persuasive interest appears low on the test. From your own interviews, your study of reports of his classwork, and talks with his teachers you learn that he is changing. His literary interest is average, but he is devoting more time to reading now and doesn't even mind writing a book report, a job he used to detest. He is beginning to look more critically at color and form in the objects around him, too. At the same time, the glimmer of scientific and mechanical interest which appeared a few years back when he was given a handsome tool chest seems to be fading.

Just beneath the surface, perhaps Jim harbors some imaginative yearnings and talents he does not express for fear of criticism. They are probably not talents to make

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him a fiction writer or a fine artist, but they may help make him a man of vision, a man of sensitivity, a man aware of new ideas and untried methods.

As his counselor, you may advise Jim to watch himself in the months ahead—to note how he feels about working alone, or telling others about his ideas, or trying to convince them; what he likes to read about, whether it is political events, scientific discoveries, sports, or finance; how he reacts to assignments of term papers; whether he is interested in the shop talk of a businessman, a teacher, or a lawyer; how well he does in such courses as accounting and economics. You may help Jim understand that his choice of career depends on more than just liking his major subject; that it depends, too, on the kind of person he is—on what he considers most important, whether it is money, prestige, service to others, discovery, or creativity; on the way of life (travel, urban or rural living, for example) he prefers; on his special aptitudes; that it may also be influenced by the job market.

It is possible that the accountant Jim looks like at 17 may turn into a business executive, a teacher, a politician, or writer—or his job may cut across a couple of fields. In fact, by the time he is 45, Jim might prefer several vocational fields to accounting.

With new experiences and more years, a little of the old Jim may be sloughed off, to be replaced by something new. A gradual shift in his personality pattern may result from newly discovered powers, and Jim may find himself not only thinking creatively but expressing himself freely. If you have prepared him for change, Jim may be able to recognize changes within himself and adjust his vocational goals accordingly.

You see Jim as he is now, and you view his past through eyes of the present. His tests and his questionnaires of interests and activities represent him as he is today. His school grades seem to offer pertinent evidence of his current ability and interest. Jim may appear to be an easy person to counsel, and a college major in accounting may seem to be a realistic goal. Nine times out of ten such a person as Jim would probably wind up in accounting or a closely related field.

It is the tenth Jim whom you should anticipate. If Jim is erroneously pigeon-holed as an accountant, it is not the battery of tests that is at fault; it is you, the counselor, who have failed to recognize that a 17-year-old may still have a lot of maturing to do.

A few questions put to Jim may reveal consistent trends or point to changing emphases: When did you first become interested in mathematics? What have you done for fun that involves figures—like keeping score, working mathematical puzzles, taking measurements? Has your interest in math been growing stronger or weaker? How about people: Have you belonged to any groups like the Boy Scouts? and to what extent did you participate? what Scout activity did you like best? Would you like to join a fraternity in college? What clubs would interest you? Or how about literary trends: What papers or magazines did you read 3 years ago? Last month? What subjects did you enjoy reading about then, and now? If you were asked to write a theme, what title would you choose?

During junior and senior high school, and to a lesser degree in college, a student is in a stage of flux, living just one moment of life. If he has requested guidance, he may be balancing, teetering—undecided as to what direction his tendencies will carry him. His counselor will not deal with permanently molded material, but with a plastic, changing assortment of hopes, ideals, satisfactions, and determinations. It is the counselor's responsibility to help the student see himself now—poised between what he was in the past and what his propensities are leading him toward in the future.

The Horatio Alger theme is not typical of the life pattern of boys, nor do many girls become My Fair Ladies. In between the "now" and the "then," however, lies a period of possibility which should not be shut off by firm predictions. A counselor with imagination and optimism has the opportunity of holding doors open, of showing the student how to steer and alter his course as experience and maturity change his values.

The counselor can best prepare a student for his future by presenting him a broad view of vocational goals. Even when all qualifications seem to point to chemical engineering, for instance, the counselor should introduce the student to other major fields of engineering, as well as related occupations such as sales engineering, industrial management, college teaching, technical writing. If the counselor doubts whether the student can obtain a degree in engineering, he should discuss semiprofessional technical fields with him.

The uncertainty of the future in no way detracts from the value of tests administered in this fleeting phase of the student's life. They are of distinct worth in describing him. Without them, the counselor would lack a convenient point of departure from which to begin the search into the student's past to discover trends. They offer the counselor bases much better than guesswork for delineating probable directions in the future. Tests of scholastic ability suggest how far one might go; tests of interest, values, and personality indicate areas to be explored.

The counselor's function in guidance is to help students understand themselves, to help them mold their future according to their interests, aptitudes, and values and to make significant contributions to family and community life. For this, the counselor needs extensive formal preparation. In addition, the role of counselor demands imagination, which should somehow be shared with the student so that he can envision for himself many possibilities instead of one narrow vocational channel. An "open-end" philosophy of guidance permits counseling for a future that is indefinite.

TESTING: *A letter to teachers*

AMONG THOSE who use standardized tests we hear such remarks as these: "Test results are sometimes inconsistent," "one never makes the same score twice," "IQ's change," "the student is not always motivated to do his best," "tests standardized on different groups do not have comparable norms." We could go on. The statements are all true. But sometimes they are used as rationalizations to explain errors which could have been avoided.

Tests are not perfect instruments and they will never give completely dependable data since they deal with human reactions. No test expert maintains otherwise. Most of the sources of error cited in this article are not the fault of either the test-maker or the test.

In an ideal guidance program, the counselor or psychometrist administers standardized tests. However, few elementary schools at present have guidance specialists on their staffs, and some persons who function as counselors or psychometrists in secondary schools lack adequate formal education in guidance and testing.

With the recent nationwide increase in test surveys, teachers everywhere have been drafted to do a job for which most have limited, if any, formal preparation. It is not my purpose here to place blame on teachers; rather, I hope, by pointing out errors, to help teachers become cognizant of good testing procedures.

Many errors in testing are never discovered. An untrained person may not recognize the clues that lead to the detection of errors. And he may not know that errors are caused by small deviations from the directions in administering a test, in scoring it, or in interpreting it.

A standarized test may be used as a survey instrument to measure group achievement and to uncover group weaknesses for curricular revision and teaching emphases. Thus, small irregularities in testing procedures are concealed in group statistics and have little effect on the overall findings. But when standardized tests are put to their most important use in the school—as a tool in guiding the individual student—a highly dependable figure is essential. In the hands of a skilled interpreter or counselor, errors on a single test may come to light. If they do not, we can only guess at the harm that may be done. (The word, "score," is used in this article as a general term to cover IQ, percentile, grade equivalent, and other measurements.)

Factors in a sound interpretation of achievement and scholastic ability as measured by standardized tests are—

1. *The precision with which directions for administering the test were followed.* Test directions in the manual must be followed exactly. There is no room for laxity or originality.

2. *The condition of students and the seriousness with which they took the test.* The students' cooperation and effort are essential to accurate test results.

3. *The accuracy with which the test was scored and recorded.* Every figure in scoring and copying test results should be checked by a second person for accuracy.

4. *The judgment with which the score is interpreted.* The meaning of a test score can be distorted in the way it is interpreted to the pupil or to his parents, or even in the teacher's failure to note extenuating circumstances of one kind or other.

The extent to which possible errors are foreseen, provisions made for preventing them, and interpretations qualified to account for them—in short, the extent to which potential errors in testing are recognized—determines the value of tests.

Test manuals and textbooks customarily follow the pedagogical rule of stating a point in positive terms. However, with frequent repetition, the positively presented argument acquires an old-shoe familiarity and ceases to make an impression. For that reason, I am intentionally putting my points negatively, describing deviations or suspected deviations from correct testing procedures. All have occurred and many are common. I have attempted to group them under the four factors listed above:

1. Directions for administering the test were not followed precisely.

A clock without a second hand was used to time short subtests.

An examiner rephrased the test directions in her own words.

A child was permitted to start a timed test after the class had begun.

A pupil marked more than one answer for each question throughout the test.

Proctors assisting the examiner were unfamiliar with the test and the directions.

There was no sign on the door to prevent people from entering the testing room.

A test was given—

in the diningroom, where kitchen workers came and went.

in the auditorium, where the children used cardboard for a writing surface

in the library, where students working at tables could see their neighbors' answer sheets

in a classroom with a one-way public address system that did not provide for emergencies.

In proctoring, an examiner failed to observe whether pupils marked the sample items correctly, worked on

the right test, and make "shiny black marks" (required for machine-scored tests).

2. The condition or attitude of the students was not favorable.

A child who was not feeling well took an intelligence test.

Junior high school pupils took a test in a frivolous mood.

Fifth-grade pupils took a test in the afternoon, when they were tired.

3. The test was not accurately scored or recorded.

An answer sheet was machine scored with the wrong key. Teachers reduced pupils' scores by failing to scan answer sheets for "grey marks" before they were machine-scored.

A counselor used the wrong set of forms in converting raw scores into percentiles.

A teacher recorded an IQ for a pupil who omitted one entire subtest.

4. The test score was not properly interpreted.

A sixth-grader took home grade-placement scores with no written interpretation. She explained to her mother that 9.2 meant that she did as well as a child 2 months *beyond* the ninth grade.

Teachers gave all test scores to all parents with no regard for their understanding of tests or for inconsistent test results.

No attention was given to verbal and quantitative subdivisions in interpreting an intelligence test score.

A third-grade pupil's permanent record card carried his IQ but no indication that Italian was spoken exclusively in his home.

Still other deviations bear the mark of unprofessional practices. For instance—

According to recorded achievement test results, a class of pupils who were average in IQ gained 3 years in one school year.

A child whose mother was a counselor scored 109 in one year. The next time he was tested, his IQ was recorded as 160.

A teacher permitted children to work beyond the time limits of tests.

After the test, a teacher gave correct test answers to those who requested them.

A teacher assigned grades on report cards on the basis of standardized tests.

It is inconceivable that anyone would wish to hinder a pupil's progress through school by burdening him with responsibilities to which he is not equal, and yet some do hinder it by carelessly or intentionally raising a score. Nothing is gained by being "generous" to a child and handing him an unearned score on a test. He is penalized if for any reason his recorded score is higher than it should be. Nor would one wish to deprive a child of a challenge to work on the highest level of which he is capable. Whether a pupil is overrated or underrated, he is handicapped in being misjudged.

Fortunately, teachers who depart from the rules to raise an individual score or a class average on a standardized test constitute a small minority. Certainly they do not understand the concept underlying standardized tests. Or, perhaps, they work under a principal who has had a gap in training and experience, leading him to look on a class average on an achievement test as a measure of the efficiency of a teacher. Some principals fail to realize that a pupil's achievement score should be evaluated only in relation to measures of his general scholastic ability, that a single score on an achievement test given for guidance purposes is of little significance alone. Let me illustrate: A bright child who makes an average score is not making the progress he should, but a slow learner who makes an average score is deserving of praise.

Even if a teacher can point to commendable achievement of her class in relation to its level of general ability, small credit is due her. If her pupils are tested in the fall, their previous teachers share the credit for their progress; if they are tested in the spring, she has taught them for less than 1 year of their total education. That a test of achievement is *not* a measure of the efficiency of any one teacher should be emphasized again and again. Achievement tests measure the *total* education of a child—his opportunities, his motivation, his educational foundation both in and out of school—and the education he has acquired must be judged in relation to his ability to learn.

To some extent it is possible to gage teaching efficiency within a school by a study of the achievement levels of the *same* children on different forms of the *same* standardized achievement tests over a period of years. The gains in average scores should be measured against expected gains as judged by their ability to learn. Thus, if a class of children in a school took a battery of tests in the third grade and another battery of tests, standardized on the same population groups, in the sixth grade, the normal gain for those who took the two batteries would be 3 years if their average IQ approximates 100. If it is a superior group, the gains should be more than 3 years, and the reverse would be true with a slow-learning group. Either more or less than expected gains might *suggest* superior or inferior teaching over the 3 years. The interpretation of

Continued on page 27

by ELMER C. DEERING

School bonding capacity: Effective use

MR. DEERING in his position as specialist in school finance is making a continuing study of school bond issues across the country.

BOARDS of education must frequently decide the length of the term of school bonds. Usually they are guided, not by what is desirable, but by the total amount of annual revenue that will be available for debt service. Often their decision rests, not on how much money can be made available legally for debt service, but the total amount of revenue that taxpayers are willing to provide for all school purposes and, in many cases, for all local government, including schools.

A great number of school districts find it almost impossible to finance short-term bonds, for, although these bonds cost less in the end than long term, they require larger annual debt service payments. Let me illustrate: the total interest charges per thousand dollars at 4 percent amount to $730.40 on 30-year serial bonds but only $231.48 on 10-year bonds.[1] In order to take advantage of this saving of nearly $500, however, the district each year must raise $124 for principal and interest instead of only $58 for the 30-year term. You may think this a small difference until you consider what it means for a bond issue of, say, $500,000: at 4 percent the district will have to raise $62,000 a year for 10-year bonds and only $29,000 a year for 30-year bonds. But in the end the 30-year bonds will have required total payments of $865,200, the 10-year bonds only $615,740.

Of the bonds sold in the 10 months ending April 30, 1960, as the following summary shows, long-term substantially outnumbered short-term issues despite their higher total cost:

Term of bonds	*Number*	*Percent*
Under 15 years	279	18.3
15–25 years	802	52.5
25 years and over	445	29.2
Total	1,526	100.0

Doubtless some boards of education deliberately issued long-term bonds to distribute the tax burden over the life of the buildings the bonds paid for; but many of them issued long-term bonds not by choice but by necessity.

Another disadvantage of long-term bonds is that, on the average, they bear higher interest rates than short-term bonds. In every month of the 10-month period just mentioned, the median net interest cost was much higher for bonds maturing in more than 15 years than for shorter term bonds.

Table 1.—Median net interest cost of bonds sold for public school purposes, July 1959–April 1960, by month

Month	Maturing under 15 years		Maturing in 15–24 years		Maturing in 25 years and over	
	Number	Median interest	Number	Median interest	Number	Median interest
		Percent		*Percent*		*Percent*
10-month average	279	3.78	802	3.99	445	4.24
July	42	3.79	95	3.99	50	4.28
August	29	3.80	70	3.88	48	4.17
September	16	3.70	53	4.09	32	4.47
October	28	3.94	72	4.05	49	4.24
November	19	3.69	65	3.83	39	4.17
December	18	3.75	73	4.07	36	4.23
January	26	3.97	110	4.20	45	4.32
February	34	3.85	83	3.98	44	4.26
March	30	3.73	92	3.91	51	4.09
April	37	3.56	89	3.86	51	4.14

It should not be assumed that the higher interest rates of the long-term bonds were a concomitant of low quality. A comparison of the rated bonds, which represented about 70 percent of the dollar volume though only about 40 percent of the issues, shows that even high-ranking bonds paid higher rates if they were long term.

Since for all bonds the median net interest cost was 0.45 of 1 percent more than for short-term bonds, and since the cost for long-term rated bonds was 0.65 of 1 percent more than for short-term rated bonds, we can reasonably assume that in the current market long-term bonds bear an average of about one-half of 1 percent more than short-term bonds.

[1] N. E. Viles, *Local School Construction Programs*, Office of Education, Washington 25, D.C., Bulletin 1957, No. 20, pp. 59 and 76.

Table 2.—Median net interest cost of bonds sold for public school purposes, July 1959 to April 1960, by Moody ratings

Rating	Maturing in less than 15 years		Maturing in 15–24 years		Maturing in 25 years and over	
	Number	Median cost	Number	Median cost	Number	Median cost
		Percent		Percent		Percent
ALL rated bonds	75	3.41	344	3.83	234	4.06
AAA	2	3.10	13	3.29	3	4.00
AA	23	3.23	55	3.48	32	3.63
A	34	3.48	189	3.80	65	3.91
BAA	16	3.92	79	4.13	127	4.23
BA			8	4.52	7	4.53

Source: Based on sales reported by Investment Bankers' Association.

[EDITOR'S NOTE.—Current interest rates for all bonds, regardless of length of term, are given in ADMINUTES, page 23.]

From a strictly monetary consideration, short-term bonds represent greater economy and good business management. But important as the monetary consideration is, it may be of minor significance in comparison with the fiscal position in which many school districts will find themselves 10 or 15 years from now. According to the most reliable estimates of school enrollments in the 1970's and 1980's, our need for school buildings in those decades will exceed anything we have yet known. If school districts continue to issue long-term bonds, they will have exhausted their bonding power and will have none available to provide for the great enrollment increase beginning in 1970. On the other hand, by using short-term bonds now, they will regain their bonding power rapidly.

Admittedly, a school district that constructs a building every 20 or 30 years will not need to regain this power rapidly and can probably afford long-term bonds. Furthermore those benefited will help pay the cost. A district that constructs buildings every few years must get the most from its bonding capacity. Take, for example, a district that must build a $500,000 building every five years and that has a bonding capacity of only $800,000. If the district issues 10-year bonds at 4 percent, it will have $527,485 [2] of renewed bonding capacity at the end of each 5-year period, in time for another building. In other words, $800,000 bonding capacity is adequate for the construction of 4 buildings costing $2 million even if assessed valuations remain constant.

If the same district issues 30-year bonds at 4.5 percent interest rate, its bonding capacity at the end of 5 years will be only $346,000. If then the district again issues $500,000 in 30-year bonds at 4.5 percent, at the end of the next 5 years its outstanding bonded debt will be $849,000; and if it repeats the process in another 5 years, its outstanding debt will be $1,173,000. At the end of 20 years the district will still owe nearly as much on the 30-year bonds as the total cost of the 10-year bonds. Its financial accounting for $2 million in bonds will reveal the difference in cost:

	10-year bonds	*30-year bonds*
Total debt service paid	$2, 157, 220	$1, 550, 000
Debt service remaining	305, 720	2, 100, 000
Total cost	2, 462, 940	3, 650, 000

By issuing 10-year bonds, the district can reclaim bonding capacity and pay a total interest charge on the $2 million of only $462,940. In contrast, by issuing 30-year bonds it will pyramid the debt beyond its normal capacity and will pay $1,650,000 in interest. At the end of 20 years only $272,515 of 10-year bonds will be outstanding, whereas $1,387,000 of 30-year bonds will still be outstanding, $224,000 of which will be due in 10 years, $314,000 in 15 years, $396,000 in 20 years, and $453,000 in 25 years. It is this kind of pyramiding that has left some school districts unable to provide for needed facilities, particularly when assessed valuations do not keep up with enrollments.

Through efficient use of school bonding capacity, boards of education are able to obtain more classrooms for the public funds they expend.

The Kokusai Pen Pal Club of Japan has chosen a title fitting its purpose: "kokusai" means "international"; and the purpose of the club is to "unite in friendship and service the peoples of the world." Members of the club—about 4,000 Japanese boys and girls, mostly high school students—would like to exchange letters with high school students in the United States. Their club leader has written to *School Life*, telling of the club's interest in and friendship for the United States and asking that we tell our readers that Kokusai's members would like to correspond with American students.

To have a pen pal in Japan through the club, an American boy or girl needs only to send this information—name and address, age, and a list of hobbies—to Mr. Toshijiro Takahashi, Kokusai Pen Pal Club, 2729 Kichijoji, Musashino, Tokyo, Japan.

[2] Derived from *Local School Construction Programs*, p. 59.

by MILTON BECKMANN

NDEA aids strengthen mathematics programs

Dr. Beckmann, specialist in mathematics, has this past year assisted the Office in administering programs under Title III of the National Defense Education Act. He returns this fall to the University of Nebraska, where he is professor of secondary education and supervisor of mathematics.

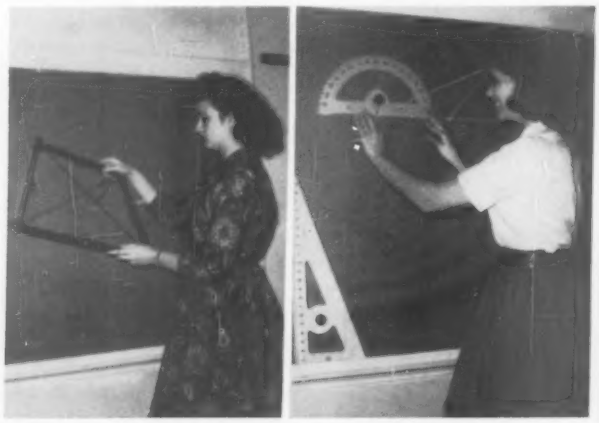
PUT SOMETHING concrete into a student's hands while you present him with an abstract idea in mathematics—a geometric model, for instance, while you demonstrate the Pythagorean Theorem—and he will understand and remember the idea far better than if you had taught him with words alone. Why? Because the idea has assailed his mind through many senses—visual, auditory, tactual, oral, and muscular—and he himself has taken an active physical part in the learning process, has in fact "discovered" the idea by himself.

In mathematics classes across the country, both elementary and secondary, the equipment that makes this kind of learning possible is being used more widely than ever before. A good deal of the money for it is coming from the Federal Government, under the National Defense Education Act, which this month rounds out the second of its 4 years. The Federal funds may be spent for countless devices that can be used to suffuse abstract ideas with concreteness—such devices as the abacus, the slide rule, the compass, and the dissectible pyramid. For geometry alone, plane and solid, literally thousands of such devices are available.

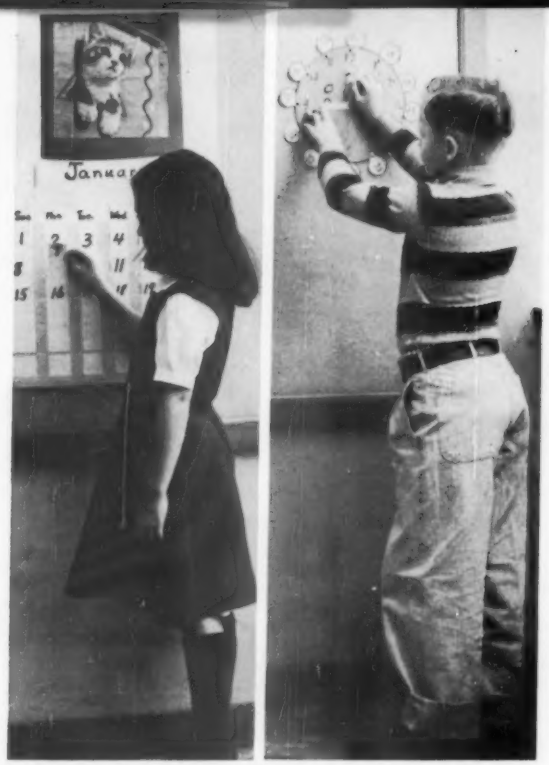
And this is not all. NDEA money can be used to buy printed reference materials—materials other than textbooks—as well as many audiovisual aids such as films and slides, and the projectors needed to show them.

Among the advantages that accrue to a school's mathematics program if there are various teaching aids available, is that many of these aids can be adapted to different ages of children and to different stages of progress. Take the abacus, for example. It is useful not only in the primary grades for teaching the beginner to count, but at far higher levels and for much more complex processes. In the junior high school, for example, an abacus can be used to intrigue the interest of the pupil who for one reason or another lags behind his classmates in mathe-

The student who has a little slide rule to practice on while his teacher demonstrates on a giant model, will grasp both the principle and the application more quickly than if he only watched and listened.



With such devices as the flexible quadrilateral and the protractor, students can observe the phenomena of geometry and, on the basis of their observations, generalize. In other words, they can experiment and discover.



Calendars and clocks, like all good "exploratory materials," can be used to put ideas across, to test and reenforce them, and to solve new problems.

matics. With this device in his hands he can gain some exciting flashes of insight into the ten-ness of the decimal system—flashes he in all likelihood never saw before but now finds bright enough to lead him on to other discoveries. For the gifted child, too, the abacus has possibilities—for enrichment units and club activities.

Wooden blocks—to mention another example—also can serve as teaching tools at many levels. The high school student who once learned to count by them is finding them once more helpful in his algebra class, where, with each of their six faces painted a different color, they are appearing in assortment to help him understand permutations and combinations. And for the child who is mathematically retarded, the blocks may prove to be an "Open sesame."

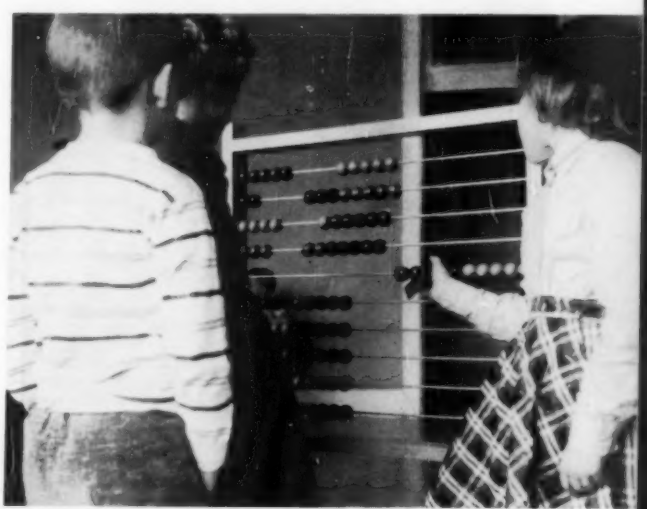
But the devices in themselves are of course nothing; even the best equipped classroom can be a barren place. No argument can be made for any of these devices unless they are rightly used, under the direction of a teacher who knows what they can do, how long to use them, and when to stop. The magic, in other words, is in the teacher himself, in his experience, his knowledge, and his imagination.

As for books and other reading materials purchasable under NDEA, they are, after all, among the means the skillful teacher uses to gradually wean the student away

Working with disks, children easily learn the ideas and language of fractions, preparing themselves for the day when they will work with symbols.

from his reliance on physical aids and send him on his way to his own independent thinking, questing, and discovering. The teacher who accomplishes this has indeed taught mathematics well: he has made the student able and eager to proceed on his own initiative, he has achieved the ultimate goal of education.

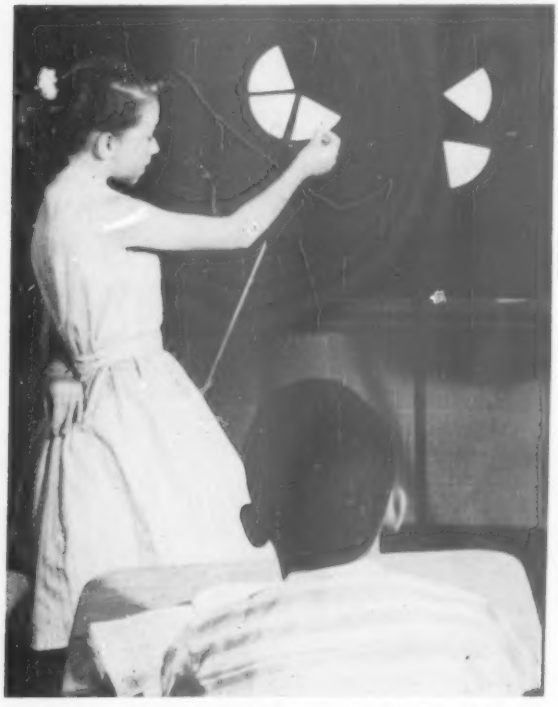
For any teacher selecting apparatus, equipment, and reference materials under NDEA to supplement classwork in mathematics, at least two documents are basic: *Purchase Guide for Programs in Science, Mathematics, Modern Foreign Languages,* prepared by the Council of Chief State School Officers and available from Ginn and Co. for $3.95; and *A Guide to the Use and Procurement*



The standard abacus—10 beads on each of 10 wires—is an old device for aiding the still older processes of arithmetic, but it is as new as morning in the attraction it has for young eyes and fingers.

A well-stocked library is indispensable if students are to follow their interests beyond their textbooks. Mathematics reference books—but not textbooks—are among items purchasable under NDEA.

of Teaching Aids for Mathematics, by Emil J. Berger, Don Ovan, and A. Johnson, available from the National Council of Teachers of Mathematics, 1201 Sixteenth



On a flannel board the abstract concepts of mathematics become things to see, touch, and move about.

With the overhead transparency projector, one of several visual aids purchasable with Federal funds, the teacher has unlimited "chalkboard." He can use drawings prepared in advance; change them as he uses them; disclose material by stages; and face his class all the while.

Street, NW., Washington 6, D.C., for 75 cents. Not everything listed there, however, can be bought with NDEA funds. Not only does the act itself limit what may be bought, but each State department of education also has set its own specifications. The teacher will do well, therefore, to check with his State's list before he makes recommendations to his school.

The pictures on these pages have been supplied by schools using NDEA funds to improve the teaching of mathematics. There are hundreds of such schools. In 1958–59, the first year the act was in operation, 1,460 projects for improving instruction in mathematics alone were initiated; some of these projects covered entire county and city school systems and, therefore, several schools. In addition there were more than 400 projects that included mathematics in a broad program which also took in either science or modern foreign languages or both. In the second year, now closing, the Office of Education estimates that about 4,000 more projects to improve mathematics instruction in elementary and secondary schools have been added to the list.

by ROBERT D. BARENDSEN

Educational changes in Chinese areas

IN THE VAST AREAS of Asia and Africa, new regimes and even a number of newly independent nations have been working since the close of World War II to set up their own educational patterns. It is in areas such as these that the struggle for men's minds, which is the essence of the competition between communism and democracy, is being waged, and the educational arena is one of the most critical fronts on which the struggle will necessarily take place.

In Asia, certainly the most crucial factor in the picture is the orientation of the hundreds of millions of Chinese, who constitute the single largest cultural group in the region. Most of these Chinese live, of course, in an area governed by a Communist regime, in a colossus which by sheer bulk of land and population throws a huge shadow of power and influence over the rest of the region. Lesser but still significant numbers of Chinese live in Taiwan, Hong Kong, Singapore, and in other parts of Southeast Asia. The educational environment in which these Chinese find themselves will have much to do with the ultimate alignment of political forces in all of Asia. Thus it behooves us to follow as closely as we can the educational developments in the areas inhabited by this large and influential group.

In Communist China

In mainland China, the Communist regime has been engaged for a full decade in remolding an ancient society to fit the pattern dictated by Marxist dogma. In striving to accomplish this monumental task, the regime has placed great emphasis on changes in the educational structure of the country. Proceeding gradually through the years, it has produced a system which draws much upon Communist theory and Soviet experience but is nevertheless adapted to Chinese conditions.

During the past 2 years two major educational developments in mainland China have set the pattern not only for recent changes but also for those to be made in the next few years. In the first of these developments, in 1958, the Communist Party took steps to give the educational system a new direction. The governing principle underlying this redirection is expressed in the two-part slogan: "Education must serve the political interests of the proletariat, and must be combined with productive labor." Since in Communist theory the Party, as the "vanguard" of the proletariat, is the sole legitimate interpreter of proletarian "political interests," the first part of the slogan clearly reaffirms the principle that education should be directed primarily toward serving the State as the Party sees fit.

This reaffirmation was apparently necessary for one special reason. The basic principle that the Communist Party, through its apparatus, is entitled to provide leadership and supervision in education had been openly challenged during the "liberalization" period in 1957, when the Party briefly solicited criticism. Critics had suggested that professional educators might be better qualified to supervise education than Party functionaries. Since such a challenge to the concept of the Party as the repository of ultimate wisdom on all matters was an anathema to the Communist leaders, they reaffirmed the principle of Party leadership in educational work, tightened Party control, and further emphasized the importance of political courses.

The principle expressed in the second part of the new slogan—"Education must be combined with productive labor"—has become the basis for a system that requires students at all levels to participate in productive work as an integral part of their curriculum. This idea was not entirely new in Communist China, but the system that has evolved goes beyond any previous practice. The new labor requirement includes not mere shop practice or practical training but actual production for the market. A new slogan demanding that "schools must set up and run factories and farms" reflects the full intent of the requirement. By the end of 1958, according to a survey reported by the regime's official news agency, 20,000 institutions of secondary and higher education had established 150,000

DR. BARENDSEN, specialist in comparative education for Far Eastern countries, visited Hong Kong and Taiwan early in 1960 in the course of a 2-month trip to the Far East.

factories and 10,000 farms and had produced 1½ million tons of iron and steel, 36,600 machines of various kinds, and nearly 2 million tons of fertilizers. If these figures are accurate, students contributed substantially to the national economy.

By the spring of 1959, the new system was apparently becoming consolidated, for official sources reported that hours of work for students were being standardized in line with a formula calling for 4 hours of work a week for all primary students 9 years old or older; 6 hours for junior high school students; 8 hours for senior high students; and the equivalent of from 2 to 4 months a year for college students, typically on a schedule of 8 months of study, 3 months of labor, and 1 month of vacation.

The 1958 reforms not only required schools to set up factories and farms but also required factories and farms to set up and run schools at all educational levels, from basic literacy classes through college level. As a result of this policy, during the last 2 years many schools have been set up by industrial and agricultural units, most of them part-time or spare-time institutions in which the worker attends classes during part of his working day or his after-work hours. This has created great confusion in educational terminology; for example, many new institutions referred to as universities are, judging by information available, at best rather mediocre vocational institutes.

During 1959, while schools were instituting the reforms called for in 1958, some persons within China criticized the effect of these changes on the quality of instruction and learning. We know of this criticism because the regime's spokesmen acknowledged it. In rebuttal they assailed and castigated the doubters, insisted that quality had not suffered in the new system, and reaffirmed the regime's intention to carry through the reforms.

Then, in April of this year, with the 1958 reforms still not firmly consolidated, the Communist regime announced its intention to change its regular schools from a 12-year primary-secondary cycle to a cycle of "approximately 10 years." It had inherited the 12-year cycle, divided into three major phases on a 6–3–3 pattern, from its predecessors, who had adopted it earlier in the 20th century. The regime gave as its reason for the intended change a basically simple economic rationale: Young people, it maintained, become "full manpower units" at age 16 or 17. Under the present system, many of this age group are still in senior high school. The regime, needing all labor available, cannot afford to have very many of these young people in school. Most youths, it believes, must be able to complete their basic primary-secondary sequence by age 16 or 17. With school entrance set at age 6 or 7, a 10-year cycle is needed to achieve this goal.

In announcing its new plans, the regime stated that experimentation over the last 2 years had proved that better teaching methods and curriculum organization would make it possible to compress the substance of the previous 12 years into 10 years without any loss of important content. In fact, it claimed that it was perfectly feasible to set up a system in which graduates of a 10-year cycle would reach a level equal to that of students who have finished the first year of studies in China's present colleges. But the regime has not yet given detailed information about the steps it means to take to achieve this end. The few facts revealed indicate that ways have been found to start mathematics at an earlier level and proceed more rapidly, and to accelerate teaching of the native language. When more details are available, we should find it interesting to compare Chinese pedagogical ideas with those current in other parts of the world, their methods of acceleration of study with those being tried elsewhere, and Chinese and Soviet developments in education.

Today we do not know the extent of the success of Communist Chinese education programs, but we do know some things about their direction. We can see even in this brief review that events of great importance are taking place—events that will greatly influence the course of developments in China and in the rest of Asia.

In Taiwan

In Taiwan, across the straits from the China mainland, other significant changes, perhaps less drastic, are being made in education. Their immediate effect may be felt by fewer people, but their influence may in time spread into other areas. Officials of the Government of Free China and educators are currently discussing the first large-scale changes in curriculum in primary and secondary schools since Chiang Kai-shek's Government took refuge in Taiwan over 10 years ago. They expect to work out the new curriculums during the coming year and put them into effect tentatively in the fall of 1961.

The full pattern of the changes is not yet discernible. But discussions so far indicate that the new curriculum for the secondary school will be somewhat freer than the old, with more elective hours. Science education will be strengthened, and more attention will be given to vocational guidance. As steps toward establishing a 9-year compulsory schooling requirement, the junior middle school (a junior high, 7th through 9th grades) will be made more comprehensive and the purely vocational schools on the junior high level will probably be abolished. Teacher training in normal schools will also be strengthened, partly because the Government hopes to make 2 years of college training a requirement for new elementary teachers.

Another significant current educational development in Taiwan is the movement to reestablish Fu Jen University, a famous Catholic institution formerly located in Peking. The Vatican has made a generous grant for the

university, and a site is being procured. Leaders of the movement hope to obtain money to defray initial expenses from the American Catholic community. Present plans call for the university to be opened in the fall of 1961. When it is established, it may eventually take its place as the second full-fledged private institution of university rank on the island. The other one is Tung Hai University in Taichung, which is supported by the United Board for Christian Higher Education in Asia, a Protestant interdenominational organization with headquarters in New York City.

Americans can be justly proud of their support of educational activities in Taiwan, not only through their church groups, but also through the U.S. International Cooperation Administration (ICA). The many projects aided by ICA funds during the past 7 years are described in a recent joint Sino-American official report entitled *The Road to Tomorrow*. Through ICA, America has helped finance facilities for higher education on Taiwan to meet the needs of Chinese students from Southeast Asia. This program has enabled the Government to construct badly needed instructional and housing facilities on several campuses, projects which should provide long-lasting educational benefits for the island and for Southeast Asia.

In Hong Kong

The British Crown Colony of Hong Kong, a small enclave on the doorstep of Communist China with a population 99 percent Chinese, has a tripartite educational system reflecting its position as a meeting place for Eastern and Western ideas. Three types of schools, classified on the basis of their language of instruction, exist side by side. There are Chinese schools, similar to those in mainland China prior to 1949 and in Taiwan today; English schools, patterned after those in the British Isles; and Anglo-Chinese schools, an adaptation of British-type schooling peculiar to Hong Kong and a few other places in Southeast Asia. Instruction in the Anglo-Chinese schools begins in Chinese and shifts gradually to become predominantly English as the student approaches the secondary level.

The Government finances and operates some schools on all levels, from primary through college education, and contributes substantially to the operating expenses of a considerable number of selected primary and secondary schools through a system of grants in aid and subsidies. The Government requires all private schools to be registered with it in order to function legally, and it exercises the right to inspect them periodically. There is no compulsory education in Hong Kong, and the majority of students are enrolled in private schools.

The most important educational development in Hong Kong in some time occurred during the past year, when several private colleges became eligible for government assistance. Some background information may be helpful in understanding this development for it is intimately connected with the political changes in China during the past decade.

Since early in the 20th century, only one institution in the colony has been recognized by the government as being of university rank. This is the University of Hong Kong, a government-supported British-type institution of high standards in which all instruction is in the English language. The university has always had a relatively small student body; currently the enrollment is approximately 1,000 students.

When the Communists gained control of the China mainland, many refugees went to Hong Kong, swelling the population to nearly 3 million. Among them were many former professors of mainland universities and thousands of young people desirous of obtaining higher education. To satisfy the needs of these people and many other Hong Kong Chinese, various groups established about half a dozen private Chinese colleges. They are patterned after modern Chinese colleges, which in turn are closer to the American than to the English model; the language of instruction is Chinese.

The colonial government of Hong Kong did not recognize these new colleges as degree-granting institutions—a fact which barred some graduates from some desirable local positions. Instead it granted them the special designation of "post-secondary colleges," an in-between category which left their status somewhat vague.

Finally, in 1957, three of the colleges formed a joint council to coordinate efforts to obtain recognition and financial assistance from the government. After extended informal negotiations, which were concluded in 1959, the government entered into a new relationship with the Chinese colleges, following the precedent it had set in its successful grant-in-aid program for private secondary education. In return for meeting certain prescribed standards, stipulated in detail in new government ordinances and regulations, a private Chinese college may now attain the status of a "grant college." When it achieves this status, it becomes eligible to receive very substantial financial aid from the colonial government, in the form of grants sufficient to cover approximately 75 percent of the salaries of all full-time faculty and substantial proportions of several other types of expenses. The government's education department will participate in administering stringent entrance and graduation examinations and will recognize a special diploma which will be awarded to graduates and which will give them access to broader opportunities.

As of the spring of 1960, three of the private Chinese colleges—Chung Chi College, New Asia College, and United College—have been approved as grant colleges and are receiving financial assistance. The first two have been

Continued on page 30

ad Minutes

Briefly noted --- for the busy School Administrator

Material for this department is prepared in the School Administration Branch, Division of State and Local School Systems, by H. D. Evans, Jr. Contributors are the specialists in the Branch—this month, Elmer C. Deering, Orlando F. Furno, Clayton D. Hutchins, Peter P. McGraw, and Winston L. Roesch.

The Rhode Island plan. Last May these columns reported forecasts by educational finance specialists on financing education in the years ahead and the growing interest in State "variable foundation programs" for school support that embody reward-for-effort principles.

Rhode Island has initiated a "foundation" program to provide the means for all local communities, rich or poor, to finance their schools at the level of quality each desires for its youth. No community, however, may finance education below a $300 per pupil expenditure level. The State and local districts share the cost of the "foundation" program. The local district's share is based upon its ability to pay. A rich community pays more, a poor one less, but in no case is the State's share less than 25 percent.

The State does not prescribe an upper limit to the education program it will help communities support. Thus, a community may, if it wishes, support a $600 per pupil program instead of a $300 one. The State will provide its allotted proportion of the cost just the same. For example, if the State's share of educational support is placed at 60 percent and the local district's at 40 percent, the State would pay $360 per pupil and the local district $140. This feature of letting the local community set the level and scope of the educational program it wants to support is what distinguishes Rhode Island's plan. The State's interests are protected since each community must provide a $300 program. Yet the plan makes it possible for any community to pursue the goal of excellence in education it desires.

★ ★ ★

Sobering figures. Preliminary counts on the 1960 census reveal that the total population of the United States increased 17.5 percent during the past decade. The Office of Education reports that the school-age (5–17) population rose 45.8 percent during the same period. Because more children are remaining in school longer, enrollment in public and private schools, kindergarten through grade 12, went up 49 percent.

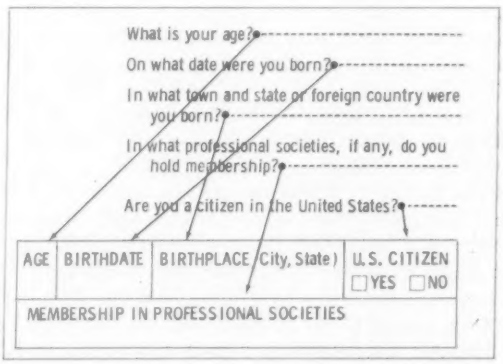
Inherent Principles. "There are two principles inherent in the very nature of things, recurring in some particular embodiments whatever field we explore—the spirit of change, and the spirit of conservation. There can be nothing real without both. Mere change without conservation is a passage from nothing to nothing. . . . Mere conservation without change cannot conserve."

These lines from Alfred North Whitehead (*Science and the Modern World,* New York, Macmillan Co., 1925) aptly epitomize the fundamental characteristic of school administration. The administrator who wishes to apply Whitehead's principles to school administration facilitates and participates in the process of change in education. At the same time he works to preserve what he considers worth preserving.

★ ★ ★

Forms analysis. William S. Harris of the National Archives and Records Service has said, "A form is a thin flake of dynamite that may often cause an explosive increase in inefficiency and office cost if not properly designed." He maintains that the cost of the time spent in filling out a form, in reading, processing, extracting data, and filing it is 20 times the cost of the paper and print; for example $100 worth of forms will cost $2,000 in clerical time.

Educational administrators are interested in good form design for reasons other than cost. They recognize that many of the inaccuracies and inconsistencies in educational information can be traced to weaknesses in the forms used to collect the information. Those responsible for designing and controlling forms may find *Forms Analysis,* prepared by the National Archives and Records Service, a useful guide. To obtain a copy, send 40 cents to the Superintendent of Documents, Washington 25, D.C. Mention the title and GPO catalog number: GS4.6/2:f76.


What is your age?
On what date were you born?
In what town and state or foreign country were you born?
In what professional societies, if any, do you hold membership?
Are you a citizen in the United States?
AGE
BIRTHDATE
BIRTHPLACE (City, State)
U.S. CITIZEN
☐YES ☐NO
MEMBERSHIP IN PROFESSIONAL SOCIETIES

A diagram from *Forms Analysis* shows that space-eating questions can be reduced to short captions that are easy to read.

Reporting Federal assistance. Schools and colleges receive more assistance from the Federal Government than their financial records show. What doesn't get into their records is Government surplus property—lands, buildings, heavy machinery, and scientific equipment—which annually runs into millions of dollars. Last year, for instance, $60,000,000 worth of surplus scientific equipment went into classrooms and science laboratories. Institutions have not reported such donations because they do not fit easily into accounting practices. They can be fitted in, however.

At the time of transfer, the Federal Government supplies schools and colleges with information on "acquisition costs" or "fair value" of the property received. If they would record this information in an account entitled "Fair Value of Federal Surplus Property Received," it would enable them to report accurately the total assistance from the Federal Government, including funds and surplus property.

★ ★ ★

School supplies. Amarillo, Tex., is planning to change its system of purchasing school supplies so that it may buy supplies from jobbers at any time in the year. Through the new system the superintendent and the business manager hope to save from 10 to 15 percent by buying in the offseason and, in addition, to expedite delivery by doing more of their buying in the winter months. Hoping that funds will be available this fall to start the new program, they have asked all principals to requisition enough teaching supplies to run them until November 1961. If all goes well, early next year principals will order enough to run them through 1962.

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Bond sales—interest in interest. Letters coming to the Office of Education in response to this column's summaries of new bond sales, all prepared by Elmer C. Deering, specialist in school finance, show that superintendents across the country are finding this information highly useful.

The letters tell of a particular interest in the trends of interest rates; and the response to our report in the April issue, which gave rates for the first 8 months of the 1959–60 school year, was exceptionally heavy. Some excerpts from the letters give an idea of the use to which this kind of information is put:

> With the building programs coming closer and closer together, we need all the information we can get about bond prices . . . The flexibility of the market in the last year, at least, has caused us some mental anguish; for it is difficult to know when to advertise bonds for sale.
>
> This school system has voted and sold bonds five times in the last twelve years. On each occasion the review of interest rates was a difficult and time-consuming process.
>
> Without this type of information, most superintendents will be pretty much in the dark as to the interest cost of their bonds, which, if their estimates prove wrong, could well mean the failure of a long and arduous election campaign.

Because of such letters, this column in the future will give each month a 12-month summary of interest costs, ending with the latest available month. This month the summary is for the 12 months of the 1959–60 school year, in which new bond sales totaled at least $2.15 billion, making the year the second highest on record.

New bond sales for public school purposes, July 1959–June 1960, by Moody ratings

(Sales in 1959–60 totaled at least $2.15 billion, a record exceeded only by the slightly more than $2.4 billion in 1957–58. Moody ratings were reported for about 75 percent of the total)

Period	Average net interest cost					
	AAA	AA	A	BAA	BA	All rated bonds
1959						
July	3.22	3.48	3.90	4.22	4.43	3 90
August	3.71	3.65	3.69	4.26	4.08	3.81
September	3.88	3.94	4.00	4.42	4.75	4.07
October	3.03	3.38	3.75	4.21	.....	3.85
November	3.06	3.43	3.79	4.10	4.75	3.71
December	.....	3.80	3.91	4.22	.....	3.94
6-month average	3.38	3.71	3.83	4.23	4.66	3.88
1960						
January	3.29	3.59	4.03	4.39	4.71	3.80
February	.....	3.60	3.71	4.09	4.48	3.86
March	4.02*	3.40	3.64	4.19	4.58	3.79
April	3.18	3.63	3.79	4.24	4.50	3.83
May	3.24	3.31	3.77	4.13	4.51	3.80
June	3.02	3.66	3.62	4.12	4.30	3.73
6-month average	3.22	3.57	3.73	4.19	4.51	3.80
1959–60 average	3.26	3.63	3.78	4.21	4.55	3.84

*Revenue bonds.

Source: Based upon sales reported by Investment Bankers' Association.

by WILSON GEE

The farmer lags in educational attainment

THE FARM POPULATION continues to lag significantly behind nonfarm in educational attainment. Every measure of education reported by the March 1959 census shows a wide disparity between farm and nonfarm people. The figures below apply to persons 25 years old or older, who, we may assume, have finished their formal schooling:

Almost twice as high a proportion of the rural farm population (13.4 percent) as of urban population (6.9 percent) had less than 5 years of school.

Almost 1 out of 4 of the rural adults (24.4 percent) had only 8 years of school as compared to less than 1 out of 7 of the urban (15.8 percent).

Fewer farm adults had 4 years or more of college—3.1 percent as against 8.8 percent of the urban, a ratio of 3 to 1 in favor of the urban.

All of these figures on educational attainment point to the inequality of educational opportunity between town and country. Fortunately, however, rural education can be improved; more fortunately still, it is being improved.

DR. GEE was for many years professor and Chairman of the Department of Rural Social Economics, University of Virginia. He is the author of several textbooks used widely in his field and of many articles published in professional magazines. During the past summer he served in the Office as consultant in rural research and statistics.

Table 1.—Years of school completed by persons 25 years old and over, U.S. civilian population, March 1959 and April 1960

Population group	Percent completing—			
	Less than 5 years of elementary school	8 years	4 years of high school	4 or more years of college
March 1959				
United States	8.1	16.9	26.9	7.9
Urban	6.9	15.8	27.8	8.8
Rural nonfarm	8.2	16.3	28.3	7.9
Rural farm	13.4	24.4	18.8	3.1
April 1950				
United States	10.8	20.2	20.2	6.0
Urban	9.1	18.7	22.6	7.2
Rural nonfarm	12.4	21.6	17.2	4.7
Rural farm	16.8	26.0	12.6	2.0

Source: March 1959 figures from Current Population Reports, Bureau of the Census, Series P–20, No. 99, February 4, 1960; April 1950 data from table 115, Census of Population, 1950, Characteristics of the Population, Volume II, Part I, U.S. Summary.

In the 9-year period between the censuses of April 1950 and March 1959, farm as well as rural nonfarm and urban population made gains in education. The farm group made a greater gain than the urban in percentage of population with 4 years of high school—from 12.6 percent to 18.8 percent. But even so, the percentage of rural adults with 4 years of high school in 1959 was lower than the urban was in 1950.

Between 1950 and 1959 farm people, as a whole, made less improvement than nonfarm, as measured by the median number of school years completed:

Population group	Median number of school years	
	April 1950	March 1959
Urban	10.1	11.4
Rural nonfarm	8.8	11.1
Rural farm	8.4	8.7
United States	9.3	11.0

As the proportion of the population receiving high school and college education increased, obviously the proportion with less education decreased. The rural nonfarm group made the greatest progress, with a decrease in adults with less than 5 years of school from 12.4 percent to 8.2 percent and from 21.6 to 16.3 percent in those with only 8 years of school. The percentage of the rural farm population with less than 5 years of school was reduced from 16.8 in 1950 to 13.4 in 1959, but the 13.4 percent was still higher than the U.S. total of 8.1 percent and even higher than the 1950 U.S. total of 10.8 percent.

Just as the farm population ranked lowest in education, it ranked highest in illiteracy. In 1870, when reliable

statistics on illiteracy in the United States were first reported, the rate was a high 20 percent; that is, 1 out of every 5 persons 10 years old and over was illiterate. By 1959 the rate was only 2.2 percent: 1 out of every 45 persons 14 years old and over was illiterate.

The illiteracy rate of 4.3 percent for farm adults in March 1959 was about 2½ times as high as the 1.7 percent for the urban adults and almost 2 times the nonfarm rate of 2.2 percent. In both groups the rate for men was higher than for women, but in rural farm areas it was twice as high, with 5.6 for men and 2.9 women.

Table 2.—Illiteracy in the U.S. civilian noninstitutional population, March 1959

(Data by area are for the population 14 years old and over; by occupation, 18 years old and over)

Population group	Percent illiterate		
	Both sexes	Male	Female
U.S. total			
Urban	1.7	1.8	1.7
Rural nonfarm	2.2	2.8	1.7
Rural farm	4.3	5.6	2.9
White			
Urban	1.3	1.2	1.4
Rural nonfarm	1.6	2.0	1.2
Rural farm	2.8	3.6	1.9
Nonwhite			
Urban	5.0	6.3	3.8
Rural nonfarm	11.5	14.3	8.8
Rural farm	14.3	18.9	9.4
Major Occupation Group			
Professional, technical, and kindred workers	0.2	0.2	.....
Managers, officials, and proprietors, except farm	0.4	0.5	0.3
Craftsmen, foremen, and kindred workers	0.8	0.8	0.6
Service workers, except private household	1.2	1.8	0.8
Operatives and kindred workers	1.5	1.7	1.1
Private household workers	3.6	.....	3.4
Farmers and farm managers	5.0	5.2	.....
Laborers, except farm and mine	8.0	8.2	.....
Farm laborers and foremen	11.7	15.1	4.9

Source: Current Population Reports, Population Characteristics, Bureau of the Census, Series P–20, No. 99, February 4, 1960.

In the total U.S. population in March 1959 illiteracy rates were higher for nonwhites (7.5 percent) than for whites (1.6 percent). In farm, rural nonfarm, and urban areas the rate for nonwhites was higher than for whites, but the sharpest difference was in rural farm areas—14.3 percent for nonwhites and 2.8 percent for whites.

Even when the farmer is compared with workers in other occupations, his literacy rate puts him at a disadvantage. Illiteracy rates reported by the Census Bureau for occupation groups 18 years old and over, as of March 1959, showed farm "laborers and foremen" as highest (11.7 percent), considerably above the next group, "laborers, except farm and mine" (8.0 percent). Even among the "farmers and farm managers" the percent of illiterates was 5.0.

Rural farm families are not likely to catch up in education with other groups in the 1960's—at least not on some counts. A sample study that was made cooperatively by the Bureau of the Census and the Agricultural Marketing Service of the U.S. Department of Agriculture in October 1959 found that about 47 percent of the high school seniors in the country in October 1959 intended to enter college in 1960, 33 percent did not, and 20 percent were undecided.

For whatever reasons—and they are not reported in the advance census release—whether for lack of motivation, lack of funds, poor preparation, or like causes, the average

Table 3.—Did 1959 high school seniors plan to enter college?

Group	Yes	No	Undecided
Urban:			
Boys	55.0	24.9	20.1
Girls	46.6	37.1	16.3
Both sexes	50.8	31.0	18.2
Rural nonfarm:			
Boys	44.4	31.5	24.1
Girls	49.5	34.5	16.0
Both sexes	47.0	33.0	20.0
Rural farm:			
Boys	34.4	38.8	26.9
Girls	[1]	[1]	[1]
Both sexes	32.0	41.2	26.8
Total, U.S.:			
Boys	49.1	28.7	22.2
Girls	45.2	37.3	17.5
Both sexes	47.1	33.0	[2]19.9

[1] Percentage not shown where base is less than 150,000.

[2] Includes 2.7 percent who did not report on college plans.

Source: Educational Status and School Plans of Farm and Nonfarm Youth, October 1959, Bureau of the Census, Farm Population, Series Census—Agricultural Marketing Service (P–27), No. 27, April 29, 1960.

farm high school senior was not as hopeful of attending college as the average U.S. senior. Less than a third of the farm seniors said they planned to go to college, compared to slightly more than half of the urban and slightly less than half of the rural nonfarm.

The sample study also covered the educational status of persons 16 to 24 years old—farm, rural nonfarm, and urban. By every measure the rural farm population had less education. It had the highest proportion of persons who had completed their education but were not graduates of a regular high school; the lowest proportion of high school graduates; the lowest proportion of persons who had attended college but were not graduates; and the lowest proportion of persons who were college graduates. The greatest disparity between the farm population and the other groups was in proportion of college graduates; more than 4 times more urban men and almost twice as many urban women as farm men and women had finished college.

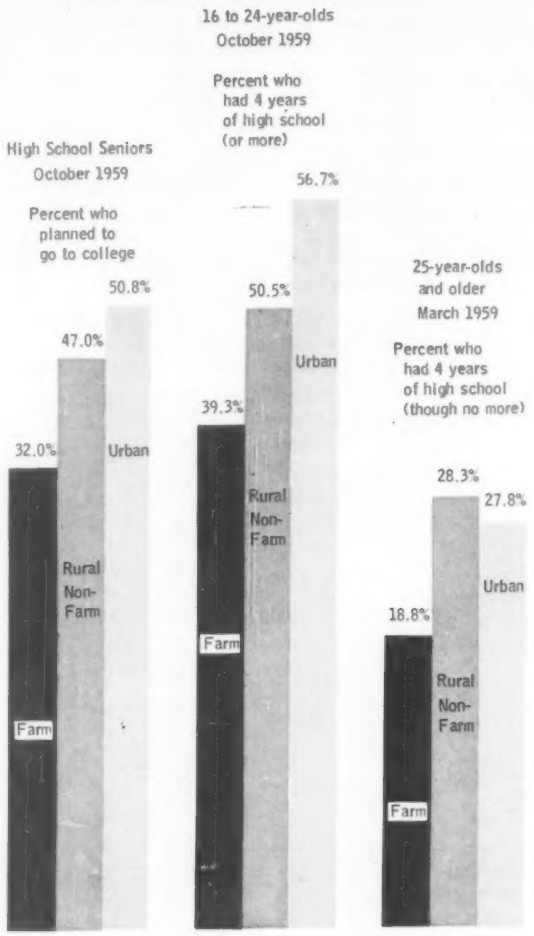
Table 4.—Educational status of persons not enrolled in school, 16 to 25 years of age, by residence and sex: Civilian noninstitutional population, October 1959

Population group	Percent not high school graduate	Percent high school graduate	Some college, not graduate	College graduate	Not reported
Total:					
Male.....	47.9	33.1	10.3	4.8	4.0
Female....	39.3	42.6	9.3	4.9	3.8
Urban:					
Male.....	43.9	33.5	12.8	6.0	3.8
Female....	35.6	43.9	10.7	5.9	3.9
Rural Nonfarm:					
Male.....	48.7	34.6	7.9	4.0	4.8
Female....	42.6	42.3	8.0	3.6	3.7
Rural farm:					
Male.....	61.3	28.8	5.5	1.4	3.0
Female....	52.5	35.5	5.1	3.0	3.9

Persons 16 to 24 years old not enrolled in school, with rare exceptions, have completed their education, and are classified according to the highest level of school completed. "Not a high school graduate" refers to persons who did not graduate from a regular high school. "High school graduate only" refers to persons who graduated from high school but did not attend college. "Some college, not a graduate" refers to those who attended but did not complete 4 years of college, whereas "college graduate" refers to those who did complete 4 or more years of college.

Source: Educational Status and School Plans of Farm and Nonfarm Youth, October 1959, Farm Population, Bureau of the Census, Series Census—Agricultural Marketing Service (P–27), No. 27, April 29, 1960, 6 pp. Adjusted by Office of Education.

In every age group the farm population lags behind nonfarm in educational attainment.



Surely the evidence is incontrovertible: After many decades of harangue and lament from many quarters, American farm boys and girls, through no fault of their own in many cases, are still by and large condemned to inferior educational advantages and to all the resulting handicaps. What is more, the effects are not confined to the rural community, for farm boys and girls carry their handicaps with them when they move to cities.

Whether cities like it or not, the movement of farm people to urban areas has been one of the major trends in our history. Approximately 6 million moved from farms in the 1920's, 3.5 million in the 1930's, nearly 9 million in the 1940's, and approximately 805,000 each year between

1950 and 1959, or a total of more than 7 million in 9 years. Moreover, a greater proportion of the young people than of any other age group are leaving the farms.

There are a number of reasons for the migration from the farm. The total number of farms has decreased from 6.3 million in 1930 to 4.1 million in 1960 (first preliminary report of the 1960 census). Because of increased investment per farm, greater use of machinery, breeding of better plants and animals, and improved agricultural practices all along the line the output per farm manhour increased from an index of 53 in 1930 to 191 in 1959 (1947–49=100), or more than 2½ times.

On the basis of these and related facts, the *Kiplinger Agricultural Letter*, March 6, 1960, predicts that "only 15 percent of children now on farms will remain as operators in the years ahead. Most of the rest will migrate to cities to work in some other occupation. It is a foregone conclusion that more education to train rural children for off-farm jobs will be recommended."

All farm boys and girls need a better education than their parents had. The 15 percent who stay on the farm will need education and training to succeed in the highly competitive business of modern farming. The 85 percent who leave the farm will need education and counseling to succeed in business or industry. Not to provide for such adjustment will mean that ill-equipped boys and girls who move to cities and towns will fall into low-status, low-income occupations in which in times of depression or unemployment they will be "the last to be hired and the first to be fired." Should not the American school system recognize the problem of rural education and work out a better solution?

Testing and Counseling: Three Letters

Continued from page 13

such findings would be limited by what the tests measure, the quality of home environment, and the various circumstances inherent in administering and taking the tests.

Furthermore, a standardized achievement test can be used to measure only limited aspects of learning, and study of the test items will reveal the limitations. Most tests are devised to measure knowledge or reasoning. Few tests can be used to evaluate what many educators regard as the most significant results of teaching: To organize material, to make critical analyses, to be creative, to develop concepts, for example. The attainment of these goals will not be reflected by the scores on most standardized tests.

Assuming that very few teachers deliberately falsify a test score, we must conclude that some teachers do so unintentionally. Their lack of adequate training in testing makes them less censurable, but the results are the same. They should be made aware that extreme conscientiousness is required of a good test examiner.

The heavy schedule of most teachers leaves little time for self-education in testing procedures. If a considerable number of teachers in a school feel themselves inadequately prepared, it would be wise to have a counselor or a test expert conduct several sessions of inservice training for teachers. If inservice training is offered annually, more and more facets of testing and the use of tests can be covered as time goes on, and the teaching staff will become well informed. The testing program will gain in value and teachers will become more proficient in diagnosing strengths and weaknesses of their pupils and in estimating their probable success at higher educational levels. Then we won't hear quite so often, "Test results are sometimes inconsistent . . . ."

TESTING: *A letter to parents*

TO BILL, standardized tests have become an old story. He has been taking them since the first grade. He has become quite sophisticated about them and no longer considers one a news item for dinner conversation. But if you ask Bill what a standardized test is, you probably will not get a complete answer. Bill may tell you that his test was printed, that there were time limits for parts of it, that he checked the right answers, and that his score will show where he stands in comparison with students all over the country.

Bill may not fully realize that his teacher's encouragement to do better work in math was based in part on his high score on the standardized arithmetic test. Nor is he likely to know the other uses his teachers make of tests—to diagnose his strong and weak points in academic work, to help him make tentative predictions of his future as he advances through school. To Bill the modern type of test may be just something to take and to forget, but to his teachers and counselors it is a short cut for obtaining varied information about him.

Because the standardized test is one of the educator's

tools, you, the parent, should understand its values and its limitations. In no way does it replace other techniques for measuring general ability and achievement: the familiar type of essay examination is still in use; class discussion is still the daily routine; written reports are still required.

You have heard of some of the terms introduced with standardized tests and used with the assumption that everyone knows their meaning: Aptitude and achievement tests, IQ (Intelligence Quotient), grade equivalent, norms, percentiles, quartiles, and median. They are common words, but they acquire special meanings when used in testing.

You surely have the right to ask for information about Bill's test results. You should know what quality of school work Bill is able to do and how you should plan for his future education. You can inform yourself—and further the goals of Bill's teacher—if you understand her tools. The test Bill took is one of those tools; but what it is and what it means are not quite as obvious as the familiar word "test" might lead you to think.

Bill took a standardized test, which is different from a classroom test devised by his teacher. A standardized test has been tried out on many children and has been found to measure certain abilities with a reasonable degree of accuracy. The questions have been carefully selected to sample the total field being measured. The test is administered and scored in the same way for every pupil and given under the same conditions—to the extent that all examiners follow the directions precisely. Consequently, it is possible to compare one child's performance with that of thousands of typical American schoolchildren. Statistics that describe the test performance of specified groups, such as age or grade groups, are called norms.

A standardized test may appear to diagnose ability with a high degree of exactness. This claim, however, cannot be made for any test designed to measure mental traits. It gives only a rough measure of ability. However, a rough measure is an extremely valuable piece of information, particularly in estimating the ability of a child who scores in a very high or very low range.

The extent to which a standardized test is a useful instrument depends on the way it is administered, the condition and attitude of the pupil who takes the test, and what the interpreter—student, teacher, or parent—knows about tests.

An IQ, or Intelligence Quotient, is a common measure of general scholastic ability. It is a statistical term based on mental ability and chronological age. Under certain circumstances, the accuracy of the IQ can be radically affected. A good administrator can avoid some of these situations; if not, he will retest the pupil. Let us take a look at an IQ of 90, which is within the average range (90–110). Let us assume that all of the following fifth graders have just been tested and that each has been assigned an IQ of 90 on his permanent record card, which travels with him from grade to grade:

Grace omitted one section of her test because she could not hear the directions.

Kenneth lost his dog the night before the test and could not concentrate.

When Frank was tested 2 years ago his IQ was recorded as 106.

Maria speaks only Spanish at home.

Helen's teacher forgot to call time at the end of a subtest.

Robert is a very slow reader but he is a whiz at computation.

Joan was familiar with some of the words in the vocabulary test because her class had studied them the day before.

Pamela's score showed an IQ of 70 but it was erroneously recorded as 90.

Phil got sick because the test excited him, but he took it anyway.

Harry broke two pencils during the test, and each time his teacher walked the length of the room to get him a new one.

These examples represent unusual conditions. They seldom occur, but they can occur and do. When they do, the IQ on the record is not a fair report of ability. Factors like these in testing may cause variations in IQ as a child is tested from year to year.

Native intelligence usually remains fairly constant. Variations in the person or his surroundings may be reflected in measurement of mental capacity by a test.

"School ability" and "scholastic aptitude" describe what is measured by intelligence tests given to students. The skill of reading, for instance, is essential to the taking of most intelligence tests—and reading is a school subject. In spite of efforts to devise tests of native intelligence independent of learning, intelligence tests used in the classroom do measure some degree of what a pupil has learned at home and at school.

A poor school and an underprivileged environment can lower an IQ, just as a stimulating school life and an enriched home atmosphere can raise an IQ. A child deprived of sight or hearing may be unaware of some aspects of the culture that surrounds him; in the same way, a child who lacks the opportunity and incentive to learn is handicapped in taking an intelligence test. Unusual home and school experiences should be considered in the interpretation of test results.

Because many people think of "Intelligence Quotient" as denoting inherited and unchangeable ability, the term has

acquired an aura of fatality. Consequently, when 9-year-old Bert Jones is tested and his IQ is found to be 87, a person unfamiliar with testing may think that Bert's IQ would be exactly 87 if he were measured again. Those who test children know that Bert may not have done his best on that day for various reasons; one reason may have been that he just did not feel like working.

If Bert's parents were told that his IQ was 87, it would be an injustice to the boy. They might always be willing to accept from him below-average work in school. The next time Bert is tested, his IQ may be 97, or possibly even 107. A person seldom scores exactly the same twice, although usually the IQ does not deviate more than 10 or 15 points. If Bert is a healthy, well-adjusted boy and has been motivated to do his best and if the test has been administered and scored correctly, his IQ may be a fairly good index of his "school ability." If it varies significantly from all other evidences of his ability, Bert should be retested.

Is as a result of cheating, coaching, maladministration of the test, inaccurate scoring, or other causes, a pupil's IQ is reported to be far above his true level of functioning, the effect on him may be severely damaging. If his teacher does not doubt the validity of the IQ and passes it along to his parents, then they and other adults in the child's small world may demand much more from him than he is able to deliver. He will not enjoy the praise he has earned for his work because more is expected of him, and, what is perhaps worse, he may be considered as a failure to himself and others rather than as the success which, in relation to his ability, he may actually be.

Most educators and psychologists believe that IQ's should not be given to students or their parents, that they should be reserved for professional use only. It is unfortunate when an IQ becomes public property—broadcast when it is 145 or whispered when it is 73. The owner of the IQ never benfits from the publicity.

Withholding Bill's IQ from you does not mean withholding all information about his ability. You should know Bill's level of ability as determined by all the tests he has taken throughout his school years, all of his grades on classwork, and the judgment of his teachers on his general academic capacity and special aptitudes. If Bill's tests and classwork point to more ability in handling words than numbers, you should be prepared for a report card with lower grades in math than in English. If you know his weakness, you may try to make subjects related to it more attractive to him. You may enlarge the opportunities for him in areas where he has strong interest and aptitudes.

What school program will be most beneficial for Bill and whether he has the scholastic aptitude to qualify him for college should be explained to you as soon as reliable estimates of his school ability can be made—a time that cannot be precisely set since children mature at different rates.

In addition to scholastic aptitude tests, achievement tests are widely used. In any field of knowledge, an achievement test cannot include all possible questions, but only a small sample of items. The law of chance may occasionally favor one pupil over another in the items included in the test, and a few guesses may raise or lower a score slightly. Instead of giving you a numerical score, which is not an exact index of ability or knowledge, a teacher may explain to you, with greater meaning, that Bill's score falls in the top quarter (or quartile) of the group of pupils who took the test throughout the country, that his score is near the middle of the group (median), and so on.

In a conference with you, the teacher should evaluate Bill's school work and predict his success at higher levels on the basis of present and past tests, his classwork, and her own observations. Current test scores should not be the sole basis for estimating academic progress.

From all the information available to her, a first-grade teacher might generalize to Susan's mother in part like this: Susan is not quite ready to read. Another year in the first grade will enable her to mature, to concentrate for longer periods of time, and to follow directions more easily. . . .

A third-grade teacher might explain to Bruce's parents: Bruce has an excellent vocabulary and reads well. His weakness is arithmetic. Numbers don't seem to interest Bruce, but he has the ability to handle arithmetic if he can be motivated. Perhaps you and I can. . . .

The sixth-grade teacher describes Alice: She is an underachiever. She is capable of doing superior work but is coasting along with average grades. Her inactivity and indifference make me wonder whether she is as healthy as she should be. . . .

And then there is Pat. Pat's teacher explains to his mother that he is a good pupil because he does well for his ability in the fifth grade. His grades are low, as are his test scores. However, he deserves as much praise for his work as the best pupil in his class. The other children are fond of Pat and ask him to help them when they make decorations and posters. He works well with his hands. . . .

Some parents have mistaken notions about testing because of misinformation or lack of information. Mr. Green was told that his son Jim scored in the 45th percentile in computation. Unfortunately Mr. Green didn't know that Jim's percentile of 45 meant that 45 children out of 100 in his grade scored below Jim, and 55 scored higher than he did. Mr. Green recalled that 70 percent was passing in school, so the 45th percentile, he thought, must be very low. Since young Jim was a chip off the old block and pretty shrewd, the test must not be any good, Mr. Green told himself.

When Joe Dill placed in the 99th percentile in the

reading test, Mr. Dill waved the flag in support of the school's curriculum and testing program. He was satisfied with the test because 99 sounded good to him with any label.

Neither Mr. Green nor Mr. Dill had any idea what percentiles meant because the boys brought home test results without written interpretations. But in statistics, figures signify nothing without an explanation of the accompanying terms. Jim Green's father did not know that Jim's percentile was about average for his grade level. Joe Dill scored in the top one percent. Mr. Dill could have been far wrong on his concept of "99" if it had referred to an IQ, because 99 represents only an average IQ.

In addition to IQ's and percentiles, teachers talk about "grade equivalents." George, a 9th-grader, earned a grade equivalent of 11.2 on an achievement test in language usage. This means that he did as well on the test as the average 11th-grader in the second month of the school year. Because he equaled the performance of an 11th grade pupil, he should not, of course, be skipped to the 11th grade. He has not covered the work of the 9th and 10th grades. George is a bright 9th-grader in a class which may range from grade 7 to 11 on an achievement test.

Whether a pupil's achievement score is high or low has little significance without information about his school ability. If your Bill scores average for his age group in paragraph meaning, is that bad or good? I may be either, because Bill's school ability may be above or below average. So again, a single test score is limited in the help it gives for guidance.

Many schools use aptitude and achievement tests, along with grades and teachers' estimates, to group children of similar abilities. They believe that pupils in homogeneous groups (with abilities on the same level) can travel academically at approximately the same pace; that consequently each group can accomplish more because the bright pupils do not mark time while the others catch up, slow learners do not sit through discussions which they cannot understand, and each pupil is encouraged to do his best among children with whom he can compete.

Standardized tests aid in uncovering some causes of maladjustment in children. A child who fails to come up to approved standards of work, no matter how hard he tries, does not enjoy school. He cannot succeed in the one all-important job of a child—school work. Is it any wonder then that he finds it more satisfying to attract attention in a nonacademic way? The way he chooses may lead to wasted time and energy, or even to delinquency.

Standardized tests help teachers and counselors diagnose an academic difficulty. A teacher who identifies intellectually handicapped children can make school a happier experience for them by putting less pressure on them, by putting less emphasis on scholarship and more on their nonintellectual interests, and by commending them for their accomplishments.

Most standardized tests given in schools measure academic ability and achievement, but these are not the only traits which contribute to success after school. A person "gifted" with leadership ability, for instance, may outdistance his competitors in almost any vocation, once he has qualified for the job. The man who understands people, likes people, and can persuade people strengthens any organization.

Maybe your son, Bill, has a special aptitude which is stronger than his academic aptitude. Perhaps he is artistic, musical, or mechanical, or has a strong interest in some vocational field with the ability to succeed in it. A boy may be adept in using his hands and thinking in three dimensions without qualifying for engineering school. His future in a skilled trade may be more secure than that of many college graduates. A general course followed by a post-high-school program will provide appropriate training for many whose talents lie in eye-hand coordination, artistic creation, or office work. Dozens of curriculums of 2-year technical schools prepare students for semiprofessional work.

Let me emphasize again: The numerical score of one test will give you only limited information. If you wish to know the quality of work Bill is doing in school and whether it measures up to what he is capable of doing, ask his teacher to summarize for you all of the data on Bill's permanent record.

You don't need test scores. What you do want is the teacher's estimate of Bill's achievement in relation to his ability and his special aptitudes. You have the right to know these things about Bill, because Bill is your son.

Chinese Areas

Continued from page 21

predominantly supported by American organizations—Chung Chi by the United Board and New Asia by Yale-in-China.

The new grant college system is viewed in Hong Kong as the first step toward the evolution of an institution of university rank—perhaps a federated institution with the three new grant colleges as its nucleus—in which the language of instruction will be Chinese. Such a university would provide greater opportunities for higher education to Chinese living outside the Communist orbit. As such, it would be a significant factor in the future orientation of an ethnic group whose members will play a critical role in Asia and the world.

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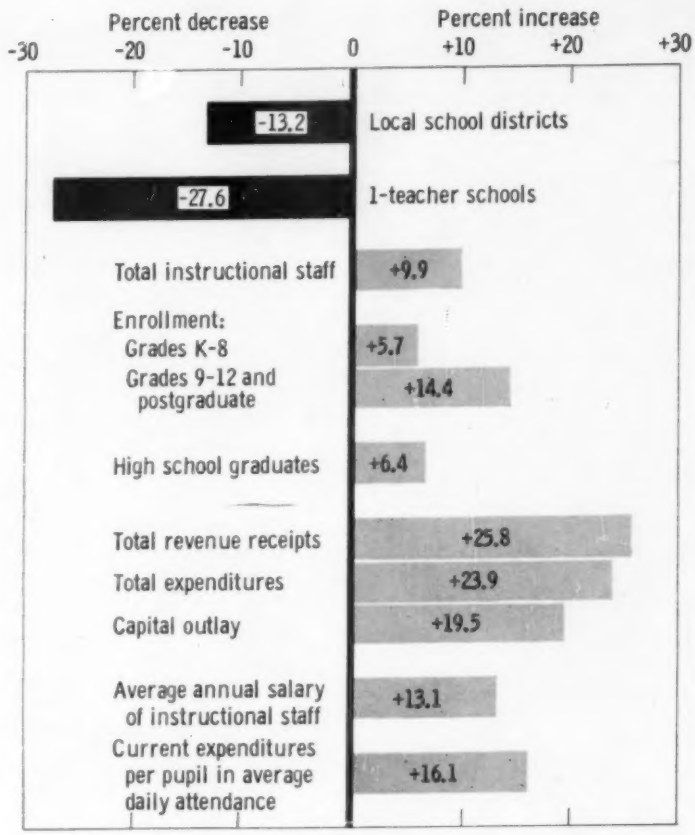
OFFICIAL FIGURES on the public elementary and secondary school system for 1957–58 show progress all along the line, for both the decreases and the increases reflect gains. The 13-percent decrease from 1955–56 in number of school districts and the 27-percent decrease in number of 1-teacher schools mean that thousands of schoolchildren have better facilities and broader programs.

Increases in enrollment (5.7 percent in grades K–8 and 14.4 percent in grades 9–12 and postgraduate) were to some extent met by increases in total instructional staff (9.9 percent), in receipts (25.8 percent), in capital outlay (19.5 percent), and in expenditure per pupil (16.1 percent). Not all of the increase in expenditures, receipts, or average salary of staff represent a net gain, however. Part of the increase in both receipts and expenditures reflects an increase of about 20 percent in expenditures for new grounds, buildings, and equipment and the amounts needed for debt service for building programs. Increases in salary and current expenditure per pupil result from a much greater rate of increase in high school enrollment than in elementary.

For further information write to the Office of Education, Department of Health, Education, and Welfare, Washington 25, D.C., for the 3-page hectograph report (dated June 24, 1960), "Selected Statistics for Public Elementary and Secondary Schools in the United States (48 States and D.C.) for 1957–58 School Year."

—EMERY M. FOSTER, ***Chief Research Studies and Surveys Section.***



Public elementary and secondary schools, 1955–56 and 1957–58

Item	1955–56	1957–58	Item	1955–56	1957–58
Instructional staff	[1] (1,213,459)	1,333,332	Nonrevenue receipts	$2,356,189,000	$2,514,676,000
Local districts	[1] 54,859	47,594	Total expenditures (current expense, capital outlay, and interest)	$10,955,047,000	$13,569,163,000
One-teacher schools	[1] 34,984	25,341	Capital outlay only [3]	$2,378,187,000	$2,852,747,000
Enrollment: [2]			Average annual salary of instructional staff	$4,156	$4,702
Grades K–8 [1]	24,290,257	25,668,820	Current expenditure per pupil in ADA	$294.22	$342.14
Grades 9–12 and postgraduate	6,872,586	7,859,771			
H.S. graduates	1,252,054	1,332,293			
Revenue receipts	$9,686,677,000	$12,181,513,000			

[1] Figure previously published has been revised. [2] Includes enrollment in nursery schools. [3] Does not include $242 million in 1957–58 and $211 million in 1955–56 spent for capital outlay by schoolhousing authorities and nonschool district agencies.

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